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# Medical Times

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## General Scientific

### A RESUME OF EAR INJURIES AND DISEASES OF THE EAR AS DESCRIBED BY SOME EMINENT OTOLOGISTS ON THE WESTERN FRONT AND COM- PILED WITHOUT COMMENT.

JOHN J. KYLE, M.D., F. A. C. S.,

LATE MAJOR, MEDICAL RESERVE CORPS, U. S. ARMY.  
Los Angeles, Cal.

I am indebted more especially to the *Journal of Laryngology, Rhinology and Otolaryngology* and edited by Dan McKenzie, M. D., F. R. C. S. E. (London). Among the contributors are some of my personal acquaintances, men who have brought luster to their names and honor to North America, as well as the British and French service.

I especially want to mention Colonel H. S. Birkett, C. B., of Montreal, Colonel Perry Goldsmith of Toronto, and Major W. Sohler Bryant, Medical Reserve Corps, United States Army.

Sir St. Clair Thomson, M. D., F. R. C. S. (London), in the January, 1918, issue of the *Journal of Laryngology, Rhinology and Otolaryngology* pays a tribute to Colonel Birkett which I want to allude to for the benefit of those in the profession of otology who have not the opportunity of reviewing this tribute. Colonel Birkett spent three years with the British Canadian contingent in France. He organized the McGill Hospital Unit of Montreal which was the first university unit in the Empire to take the field. This unit as described by Sir St. Clair Thompson was located at Boulogne and contained twenty-one hundred beds and 87,000 cases passed through this hospital during Colonel Birkett's administration. The number of cases treated of the eye, ear, nose and throat are not available to me at this time but there were probably many hundreds.\*

Dr. Gordon Wilson (ibid) February, 1918, said that while associated with the Canadian Hospital at Folkestone for six months, he had seen many cases of deafness with labyrinthine trouble and had a record of one hundred cases of nerve deafness. With such a report Colonel Birkett in three years probably saw many hundreds of cases of nerve deafness. Dr. Wilson also makes a very interesting statement: "While at the Ypres battle on the Somme (1917) he saw probably 250

cases of shell shock, fifty of whom complained of deafness and only 17 had actual deafness. Those with a fixed idea responded to hypnotism." "Some of the other cases recovered if cold water is run into the ears. Intense vertigo is noted if the electric current is used and therefore it is not recommended.

"In complete nerve deafness seen at Westcliffe there was mutism, and when cold water is run into the ear there is no reaction. In shell shock or in injury the ear is not treated. The tuning fork is used through the air and bone." In totally deaf patients resonators or speaking tubes are used. Dr. Wilson further remarks that in cases in which a missile has cut the facial nerve outside of the ear or in which there was complete deafness, these were not touched at all.

Mr. O. E. West (ibid) has seen comparatively few cases of direct injury to the ear. Those observed were to the pinna, cicatricial contraction and so on. The cases seen by him belonged to the calateral variety and about the ear and were secondary to traumatism of the perichondrium without fracture, apparently scalp wounds and in each case there was gross labyrinthian deafness. Deafness is usually confined to the side of the injury.

Surgeons find that in any cases an old condition of suppuration existed before being shell shocked or being blown up, thus complicating the diagnosis. The author also calls attention to the pseudo-labyrinthian deafness which recovers under suggestion. He also speaks of mental suggestion in those who lose their voice when they are blown up. Many cases of pseudo-labyrinthian do not recover.

Dr. Duandas Grant (ibid) also expressed himself as being surprised that a great many cases are chronic suppuration or catarrhal deafness that existed before going into the service. His experience was that when the membrane tympanica had been ruptured the labyrinth had escaped or was hardly affected at all. Dr. Grant spoke of an "in-driven" membrane and the ossicles have the appearance of being sculptured out. He probably refers to a condition produced by rapid air compression.

In regard to prognoses when the caloric test is negative, cases do not get well. If the upper range of audition is considerably lower the prognoses is usu-



ally bad. When the upper range is good, the prognoses is favorable. (We may add that there is also traces of sclerosis of the mastoid and middle ear in which a knowledge of such a condition has vanished from the patient's memory.)

In the caloric test Dr. Grant makes the following original suggestion: 'With regard to the caloric test I would remind you of the apparatus for producing cold in the ear, which I have before exhibited to the section and which has been apparently taken up by the army otologists in France as a regular official test. It is a tube of copper covered with a little cotton and moistened with a little ethyl chloride. A current of air is driven through it and as soon as it is at its coldest, as tested on one's own cheek, the patient's head is thrown back at an angle of 60 degrees and he is told to turn his eyes to the opposite wall, when nystagmus should be produced in from twenty-eight to thirty seconds. This obviates the dangerous practice of injecting cold water into the ear in which a perforation already exists. It has also been taken up by Moure in Bordeaux. The point through which the air enters the tube should be very small, otherwise the current is jerky. Dr. Paterson of Cardiff said that it would be a good thing if we had an equally portable apparatus for making the hot test.'

Dr. Grant speaks of physical deafness in counter distinction (*ibid*) to simulated deafness. He calls attention to the value of the noise apparatus in actual or simulated deafness.

Dr. Grant also asks a pertinent question that is: "What are you going to do with a case of purulent ear trouble in the soldier? In any army many old medical officers are opposed to making hospital patients of chronic cases for fear that the soldier will form the hospital habit and be psychic afterwards. In civil cases we believe all cases of ear suppuration should be operated. Dr. Grant also suggests the high range or the Gaston whistle for detection of upper tone limit."

Major Shulted (*ibid*) spoke of concussion injury, and says he differentiated between machine gunners' deafness and concussion deafness in that in the former case he finds islands of deafness. In concussion deafness the whole organ of Corti may be destroyed. Many cases of island deafness which lasts for a number of hours are due to wind waves caused by bursting shells or bomb explosions rather than sound waves.

Major Shulted also asks why diminished bone conduction and diminished air conduction for high forks means nerve deafness. When such a condition may exist it may be the ossicles, it may be the foot plate of the stapes or opposing action of the stapedius muscle and the tensor tympani muscle.

Mr. Sidney Scott (*ibid*) regarding the hearing test said: "There are three features that I think we should consider. The first is the determination of the 'tone range,' the second of 'tone acuity,' and the third, 'tone analysis.' The first is measured by forks and the monochord which is far superior to Galton's whistle. 'Tone acuity' for a given tone or a group of tones of known intensity, is recorded by the distance limit of hearing a watch or acoumeter. Under 'tone analysis' will come the faculty of hearing the voice as a whisper or in conversation. We have met with patients who have a short tone-range, e. g., 16 d. v. to about 1,000 d. v. or less, who can hear conversation at two or three meters. Others, whose hearing became defective after being buried by shell-fire, may retain normal tone-range and have very defective tone-analysis—that is,

that exhibit great difficulty in distinguishing words of speech especially in a noise. We meet with similar conditions in civil life but they have been classes under senile or nerve deafness of doubtful cause."

Captain E. A. Peters, R. A. M. C., said: "Deafness due to gunshot wound and high-explosive concussion falls into three groups:

(1) (a) The membrana tympanica may be ruptured by gunshot wound or high-explosive concussion; (b) the auditory meatus obstructed by a fragment of metal, (c) the middle ear may be filled with blood. The smaller extravasations are absorbed but others break down into abscesses. The condition may occur as the result of the regional disturbance or high explosive concussion.

(2) Labyrinthine deafness. This is due probably to hemorrhage or vasomotor change. It is a very common form of war deafness and the prognosis does not seem to be good. I have not been able to observe the microscopical condition, but that such a condition exists may be assumed (a) from the edematous, congested state of the larynx observed after gunshot wounds in the proximity; (b) the hemorrhage common in the brain with intact dura mater consequent on gunshot wound fractures in the vicinity. It results from direct blows or high-explosive, air-conducted concussion. The following is a typical case:

M——. Buried by a shell fourteen days previously; he was hit by a shell fragment behind the ear.

O'—	c. mastoid	Normal
-15"	Monochord	30,000
18,000	Lower limit	T. F. 64
T. F. 64		—
	S. watch	30
		—
		24

Rotation for external semi-circular canal, clockwise: exaggerated nystagmus; anti-clock, normal.

There was some evidence of fatigue, but no giddiness. The patient is usually concussed, and the ear exposed to the fuller force is more affected. The semi-circular canal system and cochlea may be affected in different degrees; the cochlea does not recover so quickly as the semi-circular canals. Both ends of the register are affected, but the higher notes more regularly.

(3) Physical or central deafness is comparatively rare. It is symmetrical and usually absolute deafness and is often associated with mutism or stuttering speech. This form of deafness is dealt with by Major Hurst.

These three forms of deafness may co-exist and contribute a factor in different proportions in a given case."

Major W. Sohler Bryant, known well in otological societies in the United States, in the *Journal of Laryngology, Rhinology and Otology* for November, 1917, gives statistics which will be appreciated by the specialist in the base hospital of our army.

We have observed that in cantonments there are at the present time many cases of mastoiditis, so many as to attract attention when making a casual inspection. Major Bryant in the course of his paper on "Prevalence of Ear Injuries and Diseases in the French army," says: "In the zones des Armees at the front, the total sick contains 16 per cent. of ear cases in the evacuation hospitals. These figures are equal or greater than the figures for eyes. From the evacuation hospitals 4½ per cent. of ear cases are evacuated to the rear.

In the rear of the zone des Armees, in the zone des Etapes ear cases form 6¼ per cent. of all total sick. These figures rise during time of inactivity at the front



and fall during military activity. Seven per cent. of these cases are evacuated from the zone des Etapes in the interior.

In the interior region ear cases form 9 per cent. of total sick.

I estimate that about 80 per cent. of the ear cases will show considerable impairment of function. This impairment will be sufficient to interfere with the civil occupations of the patients. The above figures are for 1917, some of them approximate.

The large number of ear defects and their economic value makes this branch of military surgery of considerable importance from a pension point of view. From my figures I estimate the allowance of claims will amount to a minimum of 24 per 1,000 of the fighting force per year."

The Morbid Anatomy of War Injuries of the Ear (ibid) is full of intense interest and is by J. S. Frasier, M. B., F. R. C. S. E., and Captain John Frasier, M.D., F. R. C. S. E., R. A. M. C.

Cases reports with micro-photographs are interesting and instructive but cannot be shown for want of opportunity in securing the author's authority.

From the point of view of morbid anatomy war injuries of the ear may be classed as follows:

(1) *Direct injuries* due to bullets or pieces of shrapnel or high explosive shell. (2) *Indirect injury* due to blows or falls on the head. These injuries may be subdivided into (a) those without fracture of the labyrinth capsule, and (b) those with fracture of the labyrinth capsule. (3) *Noise deafness* due to prolonged or intense gunfire, and (4) "*Shell*" or "*Explosion*" deafness (labyrinth concussion). Such conditions as hysterical deafness or dumb-mutism and malingered deafness do not come within the scope of this paper.

(1) *Direct injuries*.—Fracture of the mastoid process or of the external meatus may occur with or without splintering of the bone. The tympanum and labyrinth may also be involved in these cases. Further, the middle and inner ear may be injured by bullets entering through the facial bones and emerging through the mastoid or remaining embedded in the temporal bone. If the patient lives, the nature of the injury can best be ascertained by means of good radiograms—both lateral and antero-posterior. In severe and fatal cases of comminuted fracture of the petrous bone microscopic examination of the ear would be a matter of extreme difficulty, but where the injury is less severe this method may be of use. In many of these cases of direct injury suppurative otitis media occurs as a result of infection, either carried in by the foreign body at the time of the injury or due to secondary infection through the Eustachian tube or external meatus.

(2) *Indirect injuries* of the ear due to fracture of the base of the skull in civil life were recently dealt with by one of us (J. S. Frasier) in the *Journal of Laryngology, Rhinology and Otology* (July, 1917, p. 222). We have recently examined the middle and inner ear from a case of bullet wound of the frontoparietal region, attended by laceration of the brain and hemorrhage into the subarachnoid space.

(3) *Noise deafness* is due to physiological over-stimulation of the auditory apparatus. Recent researches have shown that (i) air conduction of sound is of paramount importance in the production of noise deafness. Conduction through the tissues of the body, including the cranial bones, is of little account. (ii) *The Neuro-Epithelium (hair cells) of Corti's organ are first affected*, later the supporting cells are involved. The ganglion cells and nerve cells are secondarily affected.

The condition is one of so-called "degenerative neuritis." (iii) *The part of Corti's organ affected depends on the pitch of the sound*. If the noise be of high pitch the neuro-epithelium at the base of the cochlea is involved. If the noise be of medium pitch, Corti's organ in the middle coil is affected; while if the organ be of low pitch, degeneration is found in a portion of Corti's organ nearer the apex of the cochlea. These experiments confirm Helmholtz's theory of the peripheral analysis of sound.

It is very difficult or impossible to draw a line between cases of "noise" deafness or "explosion" deafness as both conditions are probably due to excessive movements of the atmosphere conveyed to the labyrinth. The explosion of a shell not only causes a great mass movement of air but produces a loud noise. It is stated, however, that the "blow" produced by the condensation of air following the explosion reaches the ear before the noise vibration, and that it may drive the stapes inward and fix it in the oval window so as to lessen the bad effects of the loud noise which follows. In somewhat the same way the stapes is fixed in Gelle's experiment.

(4) "*Shell*" or "*Explosion Deafness*" (*labyrinth concussion*). According to Lermoyez "shell" deafness is the true war deafness. Various theories have been put forward as to the pathology of this condition. (a) In many cases we are actually able to observe a *rupture of the tympanic membrane* accompanied by a certain amount of hemorrhage. It has been stated that in cases of shell explosion in which the drumhead ruptures, there is less likelihood of damage to the delicate structures of the membranous labyrinth than in cases in which the tympanic membrane does not give way. In the same way the internal mechanism of a watch, which has been dropped on the ground is more likely to escape injury if the fall results in the fracture of the watch glass. Mere rupture of the drumhead, however, unless accompanied by some lesion in the labyrinth, auditory nerve or brain would only produce a slight diminution of hearing. We know, however, that patients suffering from severe shell deafness exhibit marked or total loss of hearing. Some further lesion in the auditory apparatus must be sought for.

(b) It has been stated that *hemorrhage occur in the peri or endolymphatic spaces* of the inner ear, and that the delicate neuro-epithelial sacs and tubes of the *membranous labyrinth are ruptured* by the violent concussion caused by the explosion. It is supposed that in this a gross mechanical effect is produced in the inner ear. It would appear, however, that the structures of the membranous labyrinth are well protected from concussion because they are suspended in a lymph-bath inside the hollow spaces of the bony labyrinth.

Hemorrhage may occur also in the internal auditory meatus with or without rupture of the nerve fibers which pass from the fundus of the meatus through rigid bony canals to the cochlea, utricle, saccule and cristae of the canals.

(c) It has been suggested that apart from these gross mechanical changes—(a) and (b)—the explosion and the loud noise may destroy the delicate nerve endings in the cochlea, and so result in paralysis.

The loud sound due to the explosion may paralyze the hair-cells of Corti's organ, somewhat in the same way as the nerve structures of the macula in the retina are paralyzed by the rays of the sun in "eclipse" blindness. According to this theory, "shell" deafness like "noise" deafness, is due to paresis or paralysis following over stimulation. Some observers hold that the

change is a biochemical one, while others believe that it is of a molecular nature. Theodore has microscopically examined one case of labyrinth concussion followed by total deafness and found a condition of degenerative neuritis similar to that described by Manasse and Wittmaack in old people.

(d) It has been stated that in cases of "shell" deafness the lesions are probably to be found in the brain, e. g., hemorrhages in the pons, medulla and cerebellum, involving the central connections of the auditory and vestibular nerves. According to this view, "shell" deafness has a similar pathology to cases of concussion of the brain in which there is no fracture of the skull—i. e., multiple small hemorrhages.

(e) Milligan and Westmacott have suggested that a shell deafness is due to a temporary interference with the neuron connections in the higher brain centers. They believe that the abrogation of function is *not* due to an organic lesion.

702 Title Insurance Building.

### A NEW THEORY AS TO THE CAUSE OF SLEEP.

EDWIN F. BOWERS, M.D.,  
New York.

There is one theory to account for sleep which I do not believe has yet been advanced. At least it hasn't—in any work with which I am familiar.

Nevertheless, after several years consideration of the subject, I am convinced that this theory of mine offers a solution which is sound and eminently practical—so far as any hypothesis or theory can be deemed practical.

This theory is based upon studies in the phenomena of sleep, and is founded upon a principle that scientific men everywhere are now accepting—the principle of *vibration*.

For Sir Oliver Lodge and many of the world's greatest scientists concede that what we know as "matter" really is only a form of vibration, just as are light and sound. In other words, matter is a "mode of motion." Matter, it is contended, is stable only so long as there is no interference with its normal rhythm. What we know as "matter" retains the characteristics peculiar to its form only while it vibrates at a rate normal to itself. If this rate of vibration could be materially retarded or increased, the substance would be molecularly altered, and cease to be "matter"—as we knew it originally.

Most scientists agree that physical phenomena—like heat, sound, light—are all different because they have a rate of vibration differing from one another.

Now, if light, sound, heat and matter are merely manifestations of a different rate of vibration, why might not this hypothesis be extended to include everything? Then the electron units comprising the billions of cells making up our body, including nerve-tissue, must have an inherent rate of vibration which is normal to each of them. Vibrating below or above this rate, the cells would cease to functionate normally.

Let us suppose that a standard minimum and maximum rate of vibration represents the activity of a living healthy cell. Between these two extremes, the cell functions with healthy energy and physiological vigor; the "life-force"—that unknown, and, perhaps, unknowable principle regulating these oscillations—can manifest itself without hindrance.

As long as these conditions continue, the aggregation of cells that we call the body will be "alive" and

"healthy." Between certain narrow limits of fluctuation in the vibratory rate, life and health will persist.

Perhaps this may never be mechanically demonstrable; indeed, I can conceive of no possible means of estimating the rate of vibration in a speck of protoplasm. In the case of solid bodies, this difficulty does not exist, for the reason that these substances produce a definite impact upon a diaphragm, the rate of which is measurable.

Now perhaps the best explanation of sleep is that the processes of active life cause a breaking down of the cell-structure, which loads the system with such a quantity of "fatigue toxins" that the cells are poisoned by their own end-products. During sleep, these are eliminated through the lungs and pores the liver and kidneys, and are prepared for elimination through other channels. Also, cell repair progresses much more rapidly during sleep than during the waking hours.

But here's an important point which has hitherto been ignored or overlooked by physiologists—we can force active elimination from all channels during the waking hours. Also, the inhalation of oxygen will burn up the fatigue-poisons more rapidly even than they are consumed during sleep.

Yet we know that sleep is a necessity, and that no amount of mechanical or chemical stimulation, no amount of artificial combustion of end-products, no amount of cell irritation can take its place.

We know, also, that during the active, or, perhaps more accurately, the wakeful life (for, while there is life there is activity) nerve structures shrink and the nerve filaments no longer interlock so as to convey the nervous impulses.

Consider now another point connected with sleep. Physiologists contend that energy develops from the food we eat, the air we breathe, and the water we drink; while, during sleep, the ashes and clinkers are removed from the firebox of our complicated physical machinery. Concerning the first three articles of this creed, there can be no legitimate contention. The body admittedly derives energy from food, air and water; they are absolutely indispensable to its welfare. But to the statement that sleep merely affords a more favorable opportunity for oxidizing effete material—burning up and throwing out the slag and refuse—I take exception.

For, we know, the slag can be eliminated by means of forced oxygenation. This, occasionally, is done with bicycle riders and six-day runners, who are liberally stimulated with oxygen, in order that they may better endure the horrible tortures of their stupid overwork and lack of sleep. They thus burn up their fatigue poisons and, so for a time, postpone nature's imperious demand for sleep; but this postponement can be for a few days only. The sleep must be made up, if the athlete is not to break down or lose his mind.

Now, if food, water and air supply energy, and if we can get rid of the products of cell destruction by forced oxygenation, sweating and other means, why should we need sleep?

May it not be that during sleep the human dynamo, the vital system, is recharging itself, is accumulating another supply of vitality? To my mind, the inference is plain.

During sleep, the rate of vibration is equalized—or, more accurately, normalized—by the development within the body and the absorption into the system, of a definite amount of vital force. This vital force, by the way, does not seem to come under the natural laws of conservation, but may, more appropriately, be classed



as a form of "cosmic energy." Therefore, repeated shocks upon the nerve-cells during the waking life will partly exhaust the vital force itself, so that it no longer can stimulate the normal rate of vibration.

This explanation seems more likely when we recall that the longest anyone can be kept awake without dying or becoming insane is ten days. By the expiration of this time the vibrations may have become too weak longer to furnish force for the organism, and the victim succumbs to this most horrible form of punishment.

Sleep, then, is necessary, in order to permit the vital forces to crank again the nervous engine—to replenish once more the exhausted vital forces, and to permit the rate of vibration in all the billions of particles of matter comprising our nerves and bodies once more to become normal.

The more profound the sleep the more rapidly this is effected. The more thoroughly the normal rate of vibration is restored the more harmoniously and perfectly all the functions of mind and body will be carried out.

Now, it is an aphorism in physics that contact inhibits free vibration. If one touches a finger to a drum membrane or to the vibrating string of a musical instrument the "tone" is immediately deadened.

Why, therefore, may it not be possible that the vibration of the electrons comprising the body, having a normal rhythm during sleep, is jarred into an abnormal rhythm by any disturbing factor—say, by coming in contact with another sleeper occupying the same bed?

We know that the restlessness of one sleeper is unconsciously communicated to another who shares his bed. May this not be due to an interference with the normal vibration rate—manifested through the nervous organism?

In any event, it is evident that the present vogue in favor of a separate bed for each individual is founded upon sound scientific principles, and that, within a few years, wherever economic conditions make it possible everybody will have a bed "all to himself."

For, entirely apart from the lessened danger of contracting infectious diseases, and the improved hygienic state of the solitary sleeper, there is a freedom from vibrational disturbances which is bound to reflect itself in an improved physical and physiological tone.

After all, if it is not considered expedient for soldiers, institutional inmates, or sick people to sleep "double," why should anyone—married or single, old or young, healthy or inferior, be subjected to its danger and discomforts?

All of which is in line with this old-new theory of sleep.

225 West End Avenue.

#### Control of the Careless Consumptive.

Dr. R. Lyman, of Wallingford, Conn., publishes a paper read before the Connecticut State Conference of Charities and Corrections, in May, 1917, on the control of the criminally careless consumptive. Though much has been done in the anti-tuberculosis campaign in the way of education and relief there is still no adequate means of handling the persistent and criminally careless consumptive by whom the disease is so largely disseminated especially among children. There is a lack either of the necessary statutes, of the will to enforce them or of the necessary institution. Lyman cites typical cases in point. In urging for proper provision for the handling of such cases he argues that the cost will not necessarily be great since the necessity of submission must go from the institution for restraint to sanatoria already provided.—(*Am. Rev. Tub.*, 1918, Vol. 2, No. 1.)

#### THE LAST QUARTER OF AN HOUR.

W. L. ESTES, M.D.,

CHIEF SURGEON AND DIRECTOR OF ST. LUKE'S HOSPITAL,  
Bethlehem, Pa.

Many of us have known men of ability, education and good purpose to utterly fail because they were not able, or neglected to hold out to the very end of a bitter struggle.

A prudent general holds back his reserves in order to meet the call for the final charge against the enemy.

It is no less true of moral and spiritual battles than of physical battles that the elements of success are careful preparation with foresight, and reserve strength with endurance. Good generalship and reserve strength sums up the whole.

While one might profitably continue this line of thought in the form of a homily the purpose of this paper is to apply the main idea to the purpose and to the work of the surgeon.

If a surgeon, as a conscientious man must, reviews his work from time to time and not only bemoans his failure, but tries to analyze the cause of these failures he will almost surely note that he failed either (1) from lack of preparation or (2) from lack of endurance.

The paper will discuss these two phases of failure very briefly. First, preparation. The writer holds to the conviction that surgeons are born, not made. Some men can never become first class surgeons though they studied in the best schools and clinics for many years.

Other men will be brilliant and most successful surgeons though they lack the long careful training of good schools, and the best clinics.

Oliver Wendell Holmes' saying "A man's training must begin a hundred years before he is born" is but another way of putting the fact that surgeons must inherit the traits necessary for the practice of surgery.

A well-known teacher and writer in surgery said of himself, "I know surgery but I cannot do surgery."

One of the necessary preparations for surgery is therefore an inherited aptitude for surgery.

The next requisite is a strong physique. This does not mean at all that a man must be physically a great, big fellow, but that he must have a physical organism which functionates well and endures well. One owes this too largely to heredity.

Preparation for the work demands that a surgeon shall be well educated. Advisedly the word "educated" is used here in its proper sense. It is not meant that a man who will be a good surgeon must necessarily have a long preliminary training in what the older schoolmen called "the humanities" (though this would be a distinct advantage) but he must by training have *drawn himself out* so that he possesses at command steady confidence and ready expedients to meet the emergencies of his work. He must know how to concentrate his mind directly and steadily on the problem in hand and not be diverted by surroundings and environment.

Three subjects a good surgeon should have well mastered, namely: First, anatomy, including embryology; second, physiology, and third, pathology. These form the foundation upon which he must work and which must support all his practice.

A man who practises surgery must have acquired good mechanical training and manual dexterity. He ought also to be something of an artist.

No dishonest man can ever be a good surgeon. To practice surgery a man must first of all be honest with himself. He should know his limitations and acknowledge them. He must be equally honest with his friends



and associates, and especially must he be honest with his patients.

While the above is intended to apply to the attitude of his moral self, it is equally true as regards his pecuniary dealings. The reason some surgeons have the custom of splitting fees is because they are not strictly honest.

A surgeon should be a *clean man*. This is a matter of habit and requires training and assiduous care.

2nd, endurance. Endurance is a mental effect, a volitional product. The staying powers of a man is so much greater than those of a horse because the man *wills* to continue in spite of pain and exhaustion. But in the matter we are considering, viz., in surgery, endurance cannot safely go beyond the limit of accurate and rapid coordination.

One of the earliest signs of serious weariness in a surgeon is the retarded reaction to the moral stimuli concerned in every major operative procedure. In certain cases it is not merely a retardation but an actual inhibition of these moral stimuli. Soon there follows exaggerated mental excitation and lack of temperamental control. If the work is still continued ataxia develops.

If one is strictly honest and has analyzed the reasons for some careless and sloppy work he has done in many instances he will find he was tired. Every surgeon has noted this kind of work, namely, ill-considered, careless and sloppy work, in observing the work of some of his fellow surgeons. Charity should always lay to the charge of weariness (lack of endurance) such work as this on the part of any of one's surgical colleagues.

When a surgeon, figuratively, "flies off the handle," while operating, finds fault with his instruments, lambasts his operation room assistants, etc., etc., that man has exhausted his endurance, he is unsafe and his patient should be delivered out of his hands.

Again when fatigue (exhausted endurance) goes so far that a ready hand fails to follow accurately and steadily the will's desire so that instant and coordinate work may go systematically on, the failing surgeon should give over his work and not attempt further operations until he has recuperated.

In a surgeon's ordinary life there are so many trying experiences he rarely goes to the operation theater without some already heavy toll on his nerves and muscles.

Habits count very largely in these experiences. Of all men a surgeon should be careful of how he spends himself when he is not operating. Disposition, breeding and training go a long way in determining the period of a surgeon's endurance.

In the millennium surgeons will be specially bred, out of selected and proved "stock" and will be required to have special preliminary and final training for their vocation.

It must follow, if even the half of the foregoing be true, that *it is the last quarter of an hour which counts for or against the patient and surgeon in every major operation.*

The comparative safety of surgical procedures consequent to the aseptic methods of operating and treating wounds has developed a prevailing willingness, not to say desire, on the part of lay people for operations. This fashion has even outstripped the tremendous multiplication of medical men who do surgery. It has followed almost as a matter of necessity that well established surgeons with hospital facilities are accustomed to have long lists of operations appointed for their clinic days, and these clinic days may be and generally are several times a week, if not every day but Sunday.

Many operations entails the necessity of seeing and examining many patients. The result is that a busy surgeon must spend all of his day, and in many instances much of his night, in seeing, examining and operating on his patients. This regime must go on for months at a time. It is physical expenditure and mental strain long drawn out. A man who has not by gradation carefully trained himself for the ordeal will start at a pace and with an expenditure of energy which like the raw athlete in trying a marathon race will at an early period of his career have exhausted his strength and he must fall by the wayside, broken and disheartened.

These are they who "sowed on stony ground." They flourish for time and then one fails to see or hear of them again. They go to Sanatoria.

Another class, better prepared and trained, confident for a time of their endurance, are gluttons for work. They are eager to outstrip their fellows in numbers of patients and in numbers of operations. They feel the fatigue but force themselves "to go the limit." Soon the last quarter of an hour of their clinic or day's work finds them exhausted. "*They must and will go on.*" Some find a small drink of whiskey or wine obtunds their sense of weariness. They take the drink regularly and increase the dose. Another set finds that cocaine in mid clinic serves to carry them through the last quarter of an hour without actual exhaustion. Another adopts heroin or morphia. This artificial "help" is always the beginning of the end. The "dope fiend" sometimes takes himself in hand, or his friends do it for him, and he recovers his reason and some measure of usefulness but he never recovers his confidence and efficiency as a surgeon.

There is a third class of surgeons fortunately who by long training, care and system have established their limitation and work within it. These men take satisfaction in and from their work and they are as careful and efficient at the end of their day's work as they were at its beginning—"Media via tutissima est."

The obverse of this subject, however, deserve a little careful consideration. How about the patient? At this period of daily multiple operations, individuals—persons—become simply *cases*, unless their social or pecuniary standing raises them above the common level. It is an anachronism to suggest that in the great scheme of doing a half dozen major operations in one period and getting through in good time that the patient as an individual should be carefully considered. In many instances they have not been examined by the operating surgeon. The writer knew of an arrangement between a certain country practitioner and an operator (one hesitates to call him a surgeon) from the city by which it was agreed that the operator should go to the practitioner's place and operate on as many cases as he could in a given time for a set stipulated amount of money. Naturally the practitioner corralled as many cases as he possibly could, presented them to the operator and told him to do certain definite operations on them which he, the practitioner, had determined beforehand should be done, at an arranged price for each operation. No matter how many operations the city man did, however, he received the per diem stipend. Naturally the number must never be very few.

At a clinic of a well known surgeon the writer heard the operator say before beginning an operation on a patient that he had not examined the patient, his family physician had sent the man in with the diagnosis of appendicitis, and he, the operator, proceeded to do the operation without any further examination before or

during the operation. He removed what seemed to be a normal appendix.

One must think that at some time there would be a very bad quarter of an hour for men such as these if ever they permitted themselves to consider and to reflect on their manner of work. Let us hope this reflection will not be delayed until the last quarter of an hour.

It were well that every tyro in surgery should be obliged to have a major operation done upon himself before ever he were permitted to enter fully and independently into surgical work.

The other consideration as regards the patient in this multiple operation period is the woe of the last patient. Few men after four or five hours steady work at the operation table find themselves in a moral, mental or physical state to make nice distinctions and close determinations in the last period of a very difficult and trying operation. One would be more than human not to suffer serious lapses of judgment, and in some cases do or leave undone something of vital importance to the patient. If one were to investigate the instances of sponges, instruments and what not left in abdominal cavities by operating surgeons, barring certain illy trained, unsystematic and incompetent men, he would find that these cases of serious oversight occurred when the operation room personnel, including especially the operator, was tired out either by the "night before" or by a too long stunt of the clinic period.

The foregoing sketchy paragraphs bring the subject of the paper to the point desired. *The test of the surgeon is the work he does in the last quarter of an hour of his operations.*

Is he fit or is he not fit? He may have started out with brilliancy, confidence and dispatch. This is of minor importance. Watch the last period. Does he do the last things—the little things—well? Does he hold himself and show himself responsible to the patient by remaining with him and doing accurately and skillfully for him to the very end?

The American College of Surgeons should require as a requisite to election into its honorable corporation that each applicant shall show conclusively that he is a perfectly trustworthy surgeon the last quarter of an hour of all his operation periods.

#### Acute Poliomyelitis in a Carrier.

Flexner's view that acute poliomyelitis is spread by personal contact, though based on clinical observation and experiment, is not universally accepted, and as alternatives some form of insect transmission or an unknown mechanism have been suggested.

Taylor and Amoss (*Journ. Exper. Med.*) support Flexner's contention by the record of poliomyelitis in a family of four children living in a village otherwise free from the disease. The eldest boy was exposed to infection when away from home, and ten days later, after his return to his family, developed the disease and subsequently died. Four days after he became ill nasopharyngeal irrigations taken from his sister and one brother were injected intracerebrally into monkeys, which subsequently became paralytic. The nasopharyngeal irrigations therefore contained the virus, and the sister and the brother were thus shown to be carriers. As the brother had a febrile attack just before the irrigation, it is probable that he had a non-paralytic or abortive poliomyelitis. The other brother, aged 7 years, who could not be irrigated, developed the disease two days later. The sister became ill with acute poliomyelitis five days after she was shown to be a carrier. This is the first instance in which a proved carrier has been known to develop the disease. The author's suggestion that every case of acute poliomyelitis has been a carrier is logical, but does not obtain any support from the analogy of cerebro-spinal fever. Among the large number of meningococcus carriers that have been detected the recorded incidence of cerebro-spinal fever has been infinitesimal.—(*Brit. Med. Jour.*, Feb. 2, 1918.)

#### THE ELECTRIFICATION OF ATMOSPHERIC DUST.

JACQUES W. REDWAY, F. R. G. S.

Mount Vernon, N. Y.

A correspondent is somewhat skeptical about the assumption that the suspension of floating dust is due to its electrification. Good!—so am I. By no means do I consider it a case of *quod erat demonstrandum*. I merely know the following facts by repeated trial, or from unquestionable authority:

That very fine water spray—so fine that it is water dust—may be oppositely electrified; and when thus oppositely charged the minute water particles coalesce into huge drops that fall to the ground as though they were shot down.

That thick smoke in contact with certain high frequency discharges disappears with amazing rapidity.

That dust, artificially created, is precipitated in a similar manner. Then, in time, some of it at least goes back into the air apparently of its own accord. Still further, the precipitation of dust from the smoke within the flues of smeltery stacks is an accomplished fact which is commercially successful. High frequency discharges that practically are undamped traverse the smoke chamber and cause the precipitation. The converse of the foregoing I therefore assume to be true.

That in desert regions the dust haze increases and decreases as the atmospheric potential increases and decreases.

These and many other facts have led me to the conclusion that the electric charge residing on the surface of a dust mote is if not the cause of its suspension, is closely associated with it—so closely, indeed, that neither exists without the other. Up to the present time nothing has occurred to disturb such a hypothesis. But by no means can the facts noted be said to prove the case; they merely demonstrate its probability.

The ratio of surface to mass presents some interesting features that do not require a knowledge of higher mathematics to be comprehended. Let us assume a mass one cubic inch in dimension, weighing an ounce. It has six square inches of surface. Conceive it to be sliced by a microtome into one thousand sections. The mass now has 2,004 square inches of surface. Each section has lost 0.999 of the original mass but only one-third of the original surface. Suppose that we carry on the subdivision so that each part has a dimension of one twenty-five thousandth part of an inch. There will be more than fifteen thousand billion of such pieces. Particles of such a dimension are pretty nearly the size of the floating matter of the air. They are plainly outlined by the aid of a one-sixth objective; they can be discerned by a one-half inch objective. Such particles, however, are very large and coarse compared with the dust motes revealed when a sunbeam penetrates a darkened room—certainly several thousand times as large.

It is evident that, when subdivision is carried on, a dimension may be reached where the ratio of the surface to the mass is infinity. Long before this degree of subdivision is reached, the repulsion of the earth charge of electricity is abundantly capable of supporting the particle at a distance where repulsion and gravitation balance each other. Certainly the repulsion of similarly electrified bodies is capable of producing the result in question. The hypothesis is reasonable; so far the facts conform to the hypothesis and that is the matter of chief importance.

To study the sanitary effects of dust one must know its movements as well as its properties. In space, far



beyond the limits of planetary attraction, cosmic dust exists; for the earth in sweeping through new fields of space is gathering it all the time. On the earth it is drawn to the earth and it is repelled from the earth; but at all times it is mingled with the air. When either waves are flying so also is the dust of the upper air. Apparently the particles are ionized; seemingly they behave quite as much like molecules as like molar sizes. Thus their distribution is both greater and wider than if they were merely wind-driven. Their relation to life is interesting. If the particles are under a given size they may enter the lungs and be expelled from the lungs without harm to the lungs. Ordinarily the air contains from five thousand to twenty thousand dust particles per cubic inch, and human beings have been breathing air for some time; likewise they will breath it for some time to come. If the dust particles are over a certain size they cannot enter the lungs at all. The research carried on under the direction of the Transvaal Chamber of Mines shows that little danger from particles more than ten microns in dimension exists. But the research of the Bureau demonstrated that particles of three or four microns in dimension were about the right size to become entangled in lung tissue. In anthracosis particles of the size noted are harmful in a moderate degree only; in silicosis they are deadly.

So far as wind-blown dust is concerned the question of its electrification need not be considered. The wind itself is the carrier; and, in thickly-people communities, the dust itself is nasty. But with reference to the floating dust of the air, neither medical science nor sanitary science can assert that it is or is not a carrier. Aerobic germs are common enough in the lower air, but it is certain that they exist in the upper air? Who can say? And, granting that they do exist in the upper air, the ionization that results from high frequency static discharges would tend to spread them enormously; but would it destroy them? Who knows? These are problems, and they are great ones. Most likely they will be solved in time; and when the solutions come they are likely to bring up other problems equally great.

Meteorological Laboratory.

#### Psoriasis and Tuberculosis.

Psoriasis has long been regarded as one of the manifestations of that vague diathesis known principally in France as arthritis. It is commonly held to be not incompatible with the best of health; in fact, it is only when, under treatment or otherwise, it subsides that substitution troubles such as asthma or arthropathy are said to arise. According to Professor Gaucher of Paris, however, its parentage is not as respectable as we have been asked to believe; indeed, it appears to have very disreputable relations.

Starting with the remark that psoriasis is of frequent occurrence in tuberculous families, Dr. Gaucher inclines to the view that this skin affection is in reality one of the protean manifestations of tuberculosis. He found on investigation that a large proportion of subjects applying for the treatment of psoriasis had lost one or more parents (brothers and sisters) from pulmonary tuberculosis, while osseous and glandular tuberculosis was common among their collaterals. Then, too, the offspring of persons suffering from psoriasis display a proclivity to tuberculous meningitis, or, later on, to one or other form of local tuberculosis.

Lastly, the subjects themselves succumb in an unduly large proportion to the pulmonary form of the disease, and, short of that termination, they are very liable to the manifestations of latent tuberculosis—asthma, enlarged glands, and the so-called tuberculous rheumatism. In short, although the evidence in favor of the tuberculous etiology of psoriasis is at present purely clinical, it is comparable to that formerly brought forward in support of the contention that lupus was a tuberculous manifestation, a hypothesis now admitted by every one. The point is one which practitioners might bear in mind in order to determine the frequency of the association of the two morbid conditions.—(*Brit. M. J.*)

#### SURGERY AND THE PSYCHOSES.\*

ROBERT T. MORRIS, F. A. C. S.,  
New York.

Now and then we learn of the recovery of a patient from some psychosis, following a surgical operation. Acting upon this knowledge surgeons from time to time have attempted to operate for the distinct purpose of relieving psychoses but the reports are not encouraging on the whole. What does this mean? It means that a certain percentage of patients with some kinds of psychoses and psychoneuroses return to normal or nearly normal mental condition when some peripheral irritation or some focal infection has been removed. Why is it that we cannot anticipate a successful outcome if we proceed systematically to remove peripheral irritations and focal infections? It is my belief that the answer to the latter question belongs to the field of allergy and that one individual has become sensitized by a certain toxic influence while the next ten patients of the same sort possessing the same kind of focal infection in similar degree may not have been sensitized. This leads us into a field requiring such elaboration that no one as yet to my knowledge has taken up the subject systematically for the purpose of securing classifiable data. Furthermore many of the cases in which psychotic and psychoneurotic symptoms appear to be precipitated by peripheral irritations may really belong in the focal infection class. By that I mean to imply that a peripheral irritation disturbing the innervation of the gastro-intestinal tract for example may allow the development of enteric intoxicating products.

Let us take for example a case of melancholia in advance of established melancholic habit or degenerative changes. The removal of peripheral irritative influences like eye strain, nasal hypertrophies, impacted teeth or a loose kidney, or peritoneal adhesions is sometimes followed by recovery of the patient from melancholia. It was formerly my belief that the peripheral irritation had formed the direct precipitating agency, but at the present time I have come to feel that an intermediate factor requires attention. That intermediate factor is the gastro-enteric disturbance caused by way of the sympathetic nervous system and proceeding from the peripheral irritation.

Then in turn comes what may be called focal infection of bowel origin and the phenomena of the psychosis are dependent upon the latter, but always in a patient who has been sensitized.

The cyclical insanities, cyclothemia and manic depressive insanity furnish particularly good opportunity for search for peripheral irritations and focal infections as precipitating malefactors. I particularly distinguish between the word "precipitating" and "causative." Perhaps we are not to look for causative factors because these lie more deeply. They belong to the susceptible individual, the one who is susceptible by inheritance of for other physical reasons.

A good deal of surgery has been aimed at epilepsy but not with any remarkable degree of success, although many epileptics have made a recovery or have had the benefit of marked amelioration of symptoms after the removal of some peripheral irritation or some focal infection. The surgeon attempting to secure good results from his work with epileptics must at the very outset classify his epileptics well and he is then to do only such surgery as should be done on general principles anyway. Here again he is to take up the question of sen-

Read at the meeting of the Poughkeepsie Academy of Medicine on March 25th, 1918.



sitization and to go into details of endocrine disturbance. Here we are once more at what may be said of psychoses and psychoneuroses in general, the need for most elaborate study of a case in advance of taking up measures which may prove curative or which may at least dispose of precipitating factors. The new field of endocrinology has many vistas looking toward the relief of patients with psychoses and psychoneuroses, but the complicated situation is apparent when we realize that various body disturbances are retroactive. A faulty endocrine influence may lead in turn to focal infection influence, or vice versa, and a peripheral irritation may be exercising controlling influence over both phenomena. In my own work I have had a number of notable recoveries from psychoses and psychoneuroses, but have been more and more impressed with the fact that one cannot anticipate the outcome of his work. My plan has been to state to the patients or their relatives that we will do whatever should be done on general principles in the way of making a study of all the possible factors in any given case. This commonly means a large item of expense irrespective of any question of my own legitimate fees for assuming responsibility and conducting the search.

What we need at the present time in this country is not institutional treatment of psychotics and psychoneurotics along established lines so much as institutional treatment of wholly new character, in which all of the laboratory facilities of the present day may be brought to bear upon any given case. The advance in this field during the coming hundred years will presumably be very much greater than the advance during the past hundred years for we have barely made a beginning with a class of patients which appears to be increasing rapidly in the environment of advancing civilization.

616 Madison Ave.

#### PERISIGMOIDITIS.

MARTIN L. BODKIN, M.D., F. A. C. S.,

RECTAL SURGEON ST. MARY'S, ST. CATHERINE'S, THE WILLIAMSBURG  
AND EASTERN DISTRICT HOSPITALS; CONSULTING  
RECTAL SURGEON, ZION HOSPITAL.

Brooklyn, N. Y.

Acute perisigmoiditis is the term used to describe an inflammation on the outer surface of the sigmoid flexure, and usually presents a picture of the collection of pus. Perisigmoiditis is either of the acute suppurative type or non-suppurative, which is a chronic inflammation. One form may imperceptibly merge into the other and vary as to its severity according to the origin.

Affections of the sigmoid flexure are rarely seen before the twentieth year and are more frequent in the female than male subjects. The sigmoid is probably more vulnerable to simple catarrhal diseases than any other portion of the large intestine, because of its peculiar anatomical construction and physiological function.

Experiments made by Hertz with the x-ray demonstrated that in the average adult the fecal mass reaches the transverse colon within about ten to twelve hours after the ingestion of food and then takes from sixteen to twenty-four hours longer to reach the sigmoid flexure. He shows further that the sigmoid flexure is the reservoir in which the fecal mass rests prior to its descent into the rectum and that the expulsive act really begins with the descent of the mass from the sigmoid to the rectum.

Diseases found in this portion of the alimentary canal

are frequently associated with similar pathological conditions affecting the entire large bowel and are divided into simple catarrhal and specific inflammations. The catarrhal inflammations of the rectum and sigmoid find their analogues in those of the pharynx, the tissue being of the same embryonic origin, and comparison makes them easily recognized by the general practitioner.

Many of the pathological conditions which affect the adult intestinal canal are found in those of the child. If we could conceive a general working scheme or classification based upon our more intelligent knowledge of local conditions in the adult, perhaps more could be accomplished with the treatment of these diseases when they occur in children and infants.

Acute catarrhal sigmoiditis of the non-suppurative type attacks young adults most frequently. The sigmoid may be acutely inflamed as the result of an exacerbation of a chronic atrophic or hypertrophic catarrhal colitis or proctitis, specific diseases such as dysentery, tuberculosis, syphilis, gonorrhoea or erysipelas. In addition, we may have the consideration of follicular colitis, secondary colitis, or ulcerative colitis, intestinal parasites, foreign bodies, impacted feces, intussusception, severe purging, poisoning from arsenic or phosphorus, and from secondary inflammation of the diverticulae.

Affections of the sigmoid are termed sigmoiditis or perisigmoiditis, just as we speak of typhilitis and perityphilitis.

The acute symptoms may run the ordinary course of catarrhal inflammations and subside on the seventh or eighth day, or become chronic. After the acute symptoms subside, a painful, non-fluctuating sausage-shaped mass may be felt, with its convexity to the right, and persist for a month or two after the attack. The "iliac roll," or "sigmoid sausage," both meaning the characteristic indurated sigmoid, is revealed on examination. The indurated sigmoid is well defined by its peculiar sensitiveness on pressure. The severity of the onset will vary the clinical picture and the disease may terminate in ulceration of the sigmoid wall, or perisigmoid inflammation.

Acute perisigmoiditis of the suppurative type presents a picture of the collection of pus similar to an appendicitis with all its dangers to life. The disease may be secondary to diverticulitis, or infection of the exterior of the bowel through the blood- or lymph-stream, as the result of an inflammation existing on the inside of the gut. A perisigmoid abscess, as a rule, perforates some portion of the bowel, and peritonitis from this source is generally fatal.

There are no pathological symptoms of perisigmoiditis further than the presence of pus in the form of an abscess. There is an elevation of temperature, accompanied by pain and possibly a chill, coated tongue, and evidence of peritoneal irritation. As a rule, the abscess takes the form of a diffuse tumor, irregular in outline, without nodulation. The mass may be situated below the iliac spine, above Poupart's ligament beneath the peritoneum; slightly below and to the left of the umbilicus beneath the peritoneum; within the two layers of the iliac mesocolon; or between that portion of the sigmoid covered on its front side with peritoneum and the posterior abdominal wall, in the loose connective tissue; or may discharge through Petit's canal and invade the lumbar region. A secondary infection of the broad ligaments, or a left-sided phlebitis may be present.

A perisigmoiditis of the suppurative variety requires surgical treatment before extension over the peritoneum or rupture of the abscess, similar to the treatment of a suppurative appendicitis.

Chronic perisigmoiditis, in most instances, is caused by a primary inflammation outside of the intestine, or due to an ulceration which has penetrated the bowel and in which still lingers sufficient irritability to produce an occasional exacerbation. Ordinarily, the disease is not limited to the sigmoid and may involve the surrounding tissue or organs.

The localized pain and evidence of a mass over the sigmoid will assist in the diagnosis. Adhesions to adjacent organs which cause obstruction, or a narrowing of the lumen of the sigmoid from an exudative process in its wall give rise to subjective symptoms.

The treatment of this form of perisigmoiditis will be indicated by the origin of the trouble within the intestine, or in a neighboring organ when discovered as the primary source of infection.

290 Clinton Avenue.

## Diagnosis and Treatment

### Indigestion.

Rankin offers the following diet scheme for indigestion:

**Breakfast.**—Weak café-au-lait, without sugar, but sweetened, if need be, with saxon. Toasted bread (or preferably one of the proprietary breads in which the starchy element is reduced to small proportions), with butter. To this meal may gradually be added an egg—boiled, poached, or scrambled; a small piece of white fish; or oatmeal porridge with cream. (Porridge will be easier of digestion if the oatmeal of which it is made is soaked overnight in cold water.)

**Luncheon.**—White meat, simply cooked, in moderate amount (tripe, calf's head, sheep's brains, chicken or rabbit cream), toasted bread, or potato chips. Water biscuit thickly spread with lactic acid cream cheese. As improvement occurs, lamb, mutton, veal, chicken, or game may be allowed. Gradual additions of a purée of green vegetable, marrow, cucumber, spinach, or the flower part of cauliflower, all thoroughly cooked, are desirable. Later on stewed fruit, also in the form of a purée, and sweetened with glycerin and saccharin, may be given, and is made more attractive by the addition of cream.

**In the Afternoon.**—Cocoa infused from the nibs, or hot milk, with dry toast and butter.

**Dinner.**—Jelly made from chicken, veal or mutton, and a pudding of milk and egg (custard, omelette, or junket) with cream. Subsequently white fish, an egg entrée, any kind of bird, occasional milky farinaceous puddings and soufflés are permissible.

**At Bedtime.**—A cupful of hot milk, Benger's Food, Horlick's Malted Milk, or thin arrowroot is grateful, and often promotes sleep. To patients accustomed to the use of alcoholic stimulants, one tablespoonful of well-matured whiskey or brandy, taken in one of the table waters at the end of luncheon and dinner, is often advisable. In atonic cases a light red wine, or stout, may be substituted for spirits at the middle-day meal when convalescence is established.

From a restricted dietary arranged on this plan, a gradual return may be made, according to digestive capacity, to ordinary meals, but the rule of limiting red meat and tea to once a day only, of avoiding uncooked vegetables, and of adhering to a small daily intake of sugar and starch should not be departed from until complete comfort is permanently restored. It is always desirable to restrict the greater portion of fluids to the end of each meal.

The dietetic treatment of both forms of indigestion aims at minimizing the tendency to gastro-intestinal fermentations, and of counteracting, as far as possible, the toxicemic intoxications which accompany, in greater or less degree, every case. Similarly, whatever medicinal plan of management is adopted, ought to aim at fortifying the dietetic restrictions, by disinfecting the gastro-intestinal tract, and by assisting nature to restore to a normal condition all the tissues and secretions concerned in the maintenance of a healthy and harmonious functional activity. In cases belonging to the tonic variety of the disorder, the leading indications are to lessen the amount of gastric secretion, and soothe the stomach mucous membrane; to steady the nervous centers; and to control microbial activity in the intestinal tract by suitable disinfectants. A combination of drugs, according to the following formula, aims at accomplishing these requirements:

℞ Ext. Valerianæ .....	gr. ii.
Acid. Carbol. pur.....	gr. ii.
Sodii Arsenatis .....	gr. 1/40
Codeinæ .....	gr. ¼
Pil. Rhei Co.....	gr. iss.
Ft. Capsul.	

One to be taken three times a day after meals.

In order to counteract the hyperacidity, a powder like this should be provided:

℞ Magnes. Carbon .....	gr. x.
Bismuthi Carbon. ....	gr. xxx.
Sodii Bicarb. ....	gr. xxx.
Ft. Pulv.	

One to be taken when there is heartburn.

Also, in order to provide for the correction of hepatic inadequacy, which is a constant accompaniment, an anti-bilious pill is required for occasional use, such as the following:

℞ Hydrargyri Subchlor. ....	gr. i.
Ext. Colocynthis .....	gr. iii.
Ext. Belladonnae .....	gr. ¼
Ext. Colchici. ....	gr. ½
Ft. pil.	

One to be taken once or twice a week at bedtime.

A tablespoonful of liquid paraffin, taken once a day, serves to lubricate the bowel, and a simple saline ought to be taken in the early morning according to requirements.

In the atonic variety of the disorder, the same considerations ought to guide the treatment, but the drugs employed require to be modified to suit the special conditions. In these cases the gastric secretion is diminished, and presumably poor in quality the muscular vigor of the stomach-wall is feeble, and there is a decided lack of nerve energy.

Acid Hydrochlor. dil.....	3 iij.
Glycerini Acid. Carbol.....	3 ij.
Liq. Strychninæ .....	3 j.
Codeinæ .....	gr. iv.
Aq. Chloroformi .....	ad 3 vi

One tablespoonful to be taken in half a sherry-glassful of water two hours after each meal.

In extreme cases, it is sometimes more satisfactory to replace the strychnin in the above mixture by calumba or gentian, and to administer the strychnin separately by hypodermic injection twice daily.

When improvement has set in, and the digestive processes are being carried on so satisfactorily that a more liberal dietary can be dealt with; when sleep is better at night, and less disturbed by dreams and nightmares; when the nervous system has become more energetic; and when the mental condition is more hopeful, a change of medication is desirable in both forms of the disorder. In tonic cases, a combination of small doses of one or other of the bromides with glycerophosphates is often successful. This may be conveniently administered according to the following formula:

℞ Sodii Sulphocarbolat. ....	3 ij.
Potass. Bromidi .....	3 iij.
Syr. Glycerophosph. Co.....	3 iss.

℞ Papain .....

5 ss.

In atonic cases, the following-on medicine should be some-

Aq. Cinnamomi .....

ad. 3 vj.

One tablespoonful, in water, three times a day, after meals.

Here the indications are best met by a mixture such as this: what different, because the general tone of the body is always poor, and requires all the help that can be given it from drugs likely to build it up. The following combination is generally efficacious:

℞ Ferri Redacti .....	gr. iii.
β-Naphthol .....	gr. iii.
Strychnin .....	gr. 1/40
Codein .....	gr. ¼
Pil. Asafoetid. Co.....	gr. ii.
Ft. Capsul.	

One to be taken three times a day after meals.

After these capsules have been taken for such a time as seems necessary, they may be succeeded by a more potent form of iron, and, as a rule, no more satisfactory mixture will be found than the old *mistura ferri aperiens*, which should be taken in periods of three weeks' duration, with one week's interval, until convalescence is completely restored.

In patients with a rheumatic family history, 10 grains of acetyl-salicylic acid, taken at bedtime, will help to counteract the inherited tendencies, and to promote sleep. In other cases, in which insomnia is a predominating experience, 7 grains of medinal, or 10 grains of chloretone, or 20 grains of chloralamide, taken for three or four nights in succession, and preferably swallowed with a tablespoonful of brandy or whisky in hot water, will often restore a satisfactory habit of sleep.—(Practitioner, Jan., 1918.)



### Treatment of Acute Intestinal Disorders.

Cohnheim recommends, in the early stage of acute diarrhoea and cholera nostras, that, instead of the usual dose of castor oil or calomel, from  $\frac{3}{4}$  to 1 litre of normal saline solution shall be given and drunk off immediately. In the course of about half an hour to an hour and a half, after drinking this down, several loose stools in quick succession will result. The effect is much more quickly produced than after a dose of castor oil or calomel. For further treatment he prefers to use morphia and codeia in place of opium, giving an equal dose of each alkaloid. These possess to a high degree the power of inhibiting movements of the bowel, so that only a small dose of each is required in place of the larger one of opium or pantopon usually given. With them he combines bismuth, and the treatment is continued until the stools show that the upper part of the alimentary canal has recovered its function, when a diet containing plenty of meat and butter can be given.—(*Corresp. bl. für Schw. Aertze.*, February 9, 1918, from *München. med. Woch.*)

### The Transmission of Plague by Bed-bugs.

The possibility of the transmission of plague by bed bugs has long been recognized by experts. There is also no doubt that these insects can give rise indirectly to the disease, as, for example, when a bug has fed on a human case of septicaemic plague, and that if these insects ever feed upon rats or mice squashed; the contents of its stomach containing the *Bacillus pestis* may, through an abrasion of the skin of the person touching the squashed insect or its stomach contents, infect that individual.

Some interesting experiments and observations upon the subject have lately been carried out at the Pasteur Institute of Southern India, Coonoor, and published in a recent number of the *Indian Journal of Medical Research*. The investigators held the opinion that there was no reason why bugs should not infect themselves from human beings suffering from septicaemic plague, and that if these insects ever feed upon rats or mice they could equally well infect themselves from these animals. During the inquiry it was found that while some bugs allowed to feed on a septicaemic plague case die in a few days from the infection, others may survive as long as 38 days and the plague bacillus may be recovered from their stomachs by culture at the end of that time. Bugs, therefore, which have fed on a patient with septicaemic plague are to be regarded as a potential source of danger. The experiments showed, too, that bed bugs cannot regurgitate, like the fleas, the contents of their stomachs in the act of feeding; so that if they ever transmit plague by biting, they must do so by washing out with their saliva the plague bacilli, which may have been stranded in their sucking tube. But these bacilli are not likely to remain in the sucking tube for long after an infected feed. It cannot, then, be said for certain as yet whether bugs can, or cannot, transmit plague by biting. It is satisfactory, however, to find that the conclusion arrived at by the above-mentioned investigators is to the effect that there is small likelihood that human plague is transmitted by bugs, biting under natural conditions.—(*Lancet*, Dec. 1, 1917.)

### Congenital Tuberculosis.

Congenital tuberculosis in human beings is rare. Only fifty-one conclusively genuine instances of it had then been published in 1915. F. Parkes Weber points out that while the infection of the fetus in these rare cases has been generally thought to have occurred only when the mother was in an advanced stage of tuberculosis and probably suffering from generalization of the disease, it may in fact occur when the mother's tuberculosis is not far advanced, or is even quiescent. In few, if any, of these instances does direct paternal infection seem to have been concerned, although such seminal infection is undoubtedly possible. Weber shows that the tubercle bacilli can pass from the mother to the fetus in various ways. No doubt the infection most commonly takes place by way of the placenta, in which tuberculous changes may be present yet extraordinarily hard to demonstrate; Schmorl even speaks of examining as many as 20,000 microscopic sections of a placenta before the tuberculous lesions present in it could actually be demonstrated. In such examples of placental infection the tubercle bacilli might be supposed to "grow through" the placenta into the fetal circulation; or else, perhaps, to be forced from the placenta into the fetal circulation by the uterine contractions during labor.

Two other possible methods of infection were suggested by Sitzenfrey in 1909. One is that chronic venous engorgement of the villous capillaries might lead to their rupture into the maternal intervillous spaces. Should this occur, maternal blood

containing tubercle bacilli might gain entry into the fetal circulation. The second of Sitzenfrey's suggestions is that tuberculous foci situated in the decidua vera may penetrate the amnion, infecting the liquor amnii and so the fetus. F. W. Andrewes had already, in 1903, put forward the view that prenatal tuberculosis might possibly be caused by the fetal ingestion of amniotic fluid containing tubercle bacilli derived from a disintegrating tuberculous lesion of the placenta. It may be added that the literature contains records of a few instances in which miliary tuberculosis of the placenta has occurred in mothers with latent tuberculosis. These would no doubt be explained by the occurrence of a temporary tuberculous bacillæmia from which the mothers made good recoveries.—(*Brit. J. Child. Dis.*, No. 12, 1916.)

### Syphilis of the Liver.

R. F. Ives says syphilis of the liver produces a frequent, and at the same time one of the most obscure and difficult pains to recognize. This pain, which may be very distressing, is situated in the epigastrium. It is dull and persistent, does not seem to be definitely related to meals, although in a general way it comes on after eating, especially with a full stomach. It is not relieved by soda or drugs. There is no nausea, no vomiting, or occult blood.

The differential hinges on the abdominal findings, viz.: The rounded liver edge, the presence of depressions, irregularly placed over the liver surface, or the finding of deep incisures with a lobulated formation. The liver is hard or resistant. This condition of the liver gives the clue to diagnosis. Should a clue be obtained, the Wassermann reaction will prove the specific origin.

Three types are recognized:

- I. Cases resembling cirrhosis of the Laënnec type.
- II. Cases resembling malignant tumors.
- III. Febrile cases resembling abscess of the liver.

The first must be differentiated by the absence of an alcoholic history; by the presence of the incisures, and the Wassermann reaction, and by the response to mercury and iodides. Also noting that the jaundice is of a lighter grade for the terminal stage found in alcoholic cirrhosis.

From the malignant tumor by the Wassermann reaction and by the response to mercury and iodides.

From abscess by the failure to obtain a history of amebiasis. It is the acute stage with perihepatitis that simulates abscess.—(*Arch. Diag.*)

### How Contractions of the Heart Are Produced.

Two kinds of muscle have been demonstrated in the heart, says Edward E. Cornwall, the primitive muscle, whose strands extend without break of continuity throughout the entire organ; and the mature muscle, whose strands are not continuous throughout the heart, but are of local distribution. It is the former which possesses the power of initiating contractions. The primitive muscle, besides being generally distributed, shows several aggregations of its tissue, of which the most important are: The sinoauricular node, situated at the upper end of the cardiac tube; the auriculo-ventricular node, situated low down in the auricular tissue at the right posterior edge, of the septum; and the auriculo-ventricular bundle, or bundle of His, which is a band extending from the auriculo-ventricular node downward into the ventricles. This bundle, apparently, is the only channel of communication between the primitive muscle of the auricles and that of the ventricles. From the fibers of the primitive muscle contraction impulses are communicated to the fibers of the mature muscle.

While impulses to contract may originate in any part of the extensively distributed primitive muscle, they do so most readily and most frequently in the sino-auricular node, which is the place of origin of the regular, normal contractions of the heart, and which, therefore, has been very aptly called the pacemaker of the heart. Originating here, the impulses sweep over the auricles and ventricles in regular order; smothering, so to speak, all impulses which might arise independently in the other nodes or regions of primitive muscle by taking advantage of the fact that impulses cannot arise in them during the "refractory period," which persists for a certain time after each contraction: before an independent contraction can develop, another impulse from the pacemaker utilizes the recovered contractility.

Besides the property of initiating contractions, the heart muscle has other properties which are called into play in the exercise of its function; viz., irritability, conductivity, contractility and tonicity; which should be borne in mind in order to understand how the regular action of the heart is produced, and to appreciate the significance of abnormalities in its action.—(*Arch. Diag.*)



### Malaria Problems.

A question which has lately caused some anxiety is whether malaria will again become endemic. The *Paris Médical* (Nov. 3, 1917), deals with aspects of malaria. It is hopeful to be informed that in three years only 100 autochthonous cases have been noted in France and none in the Marseilles district, where there is much imported malaria, and, of course, anophelines. It seems as if there were still some influence unknown, the "regional factor" of Stephens and Christophers. Much has been written by our French colleagues as to the differential symptoms of primary and secondary malaria, but we do not believe it possible to tell whether a patient's attack is the first or the fiftieth. These terms have often been employed loosely, the definition here given being: primary malaria is infection with malignant tertian parasites, secondary malaria with simple tertian. But does malignant tertian change to simple tertian?

There are no facts that we know of which show that a malignant tertian infection of West Africa becomes a simple tertian later. It certainly does not in West Africa itself, because there simple tertian is rare, malignant tertian universal, nor have we seen a malignant tertian from West Africa change to a simple tertian in this country. That the Macedonian cases did so change in November, 1916, is well known to microscopists, but the explanation may be that the patients were doubly infected at the start. This question of the unity of the species of malaria parasites could probably be settled by the observations of West African cases in this country. Will the war statistics on malaria give the *coup de grâce* to the special parasite theory of blackwater fever? We should have expected, with a writer in the *Paris Médical*, this hypothetical parasite to have become epidemic in its manifestations in Macedonia, but we believe it has not done so. Cases of blackwater fever have been observed so far only among malarias, not in dysenteries, para-typoids, cholera, or any other condition.

Concerning the mode of administration of quinin much has been learned during the last few years. Prophylactic treatment is not discussed in the French journal. So far as we know there is no experience in this war to draw upon. What an opportunity for a great experiment, and one if it had been successful that would have resulted in the saving of life, money, and time, and, if unsuccessful, at least of quinin! It is only by the method of controls not taking quinin that the value or want of value of any prophylactic dose can be determined. We believe the evidence points to the conclusion that the 5-grain or even 10-grain dose daily is useless as a prophylactic. Paroxysmal treatment, under normal conditions, presents no great difficulties and is usually successful, but we learn that in Macedonia failure has not been uncommon.

We note that the dilution of the dose used for subcutaneous injection—viz., 2.8 grammes of quinin-urethan in 30 c.c. of saline—is unnecessarily bulky, and so for the intravenous injection 2.8 grammes in 500 c.c. Experience has shown that simple tertian parasites are difficult to eradicate from the body. The ordinary paroxysmal treatment—oral, intramuscular, or intravenous—which as such is usually so successful, does not in the doses ordinarily used effect a real cure—i.e., an eradication of parasites from the body. Hence the necessity for post-paroxysmal treatment with that object in view. What is the best method of obtaining this end? This, as recognized in these papers, can only be ascertained by observations on a considerable number of cases.

The following methods are discussed: 1. A common procedure, viz., grains 10 to grains 20 daily, for considerable periods, is not a good method, for as many as 30 per cent. may relapse at any particular time while following this mode of treatment. 2. Grains 30 on three consecutive days each week is much better, for it keeps the relapses down to 5 per cent. 3. Treatment of relapses only—grains 30 during the attack and for two days more if necessary until the temperature falls—is a method which also keeps the relapses down to about 5 per cent. It has the merit, like the second mode of treatment, that it is an interrupted one, and the additional merit that quinin is not given unless it is actually necessary. The drawback to all these methods is that they probably are no more curative (in a month) than the original paroxysmal treatment. With the lapse of time, no doubt many of them will be curative, but a post-paroxysmal treatment is required which, while it is as such efficacious, will at the same time give a good chance of cure within a month or less. From this point of view we believe that these treatments will be found unsatisfactory. Neo-salvarsol treatment is recorded, but the cases are too few to enable us to estimate its value as a curative drug. Finality has not yet been reached in our knowledge of how to administer quinin in order to obtain a permanent cure, if such can be obtained by its use, and if it is not Nature that effects it.—(*Lancet*, Dec. 15, 1917.)

### Prognosis and Treatment of Laryngeal Tuberculosis.

J. Dworetzky, of Otisville, N. Y., summarizes his views on laryngeal tuberculosis, citing cases from the Municipal Sanatorium to illustrate his points. Under prognosis the following factors are discussed:

1. The pulmonary condition. The character rather than the extent of the lesion determines the gravity of the individual cases. Other things being equal, however, smaller lesions are more favorable.
  2. General condition, as indicated by temperature, pulse, and respiration. A rapid pulse or steady subnormal temperature are grave prognostic signs.
  3. Underlying disease. Gastro-enteritis or syphilis aggravate the prognosis by lowering the general vitality.
  4. Type of laryngeal lesion. In the peracute type the condition is hopeless. Acute cases sometimes recover. Chronic cases are the most favorable.
  5. Location of the lesion. When situated on the posterior commissure or on the true cords, where the mucous membrane is closely adherent, the disease takes a chronic course and the prognosis is more favorable.
  6. The extent of the lesion does not necessarily influence the prognosis for life though a small lesion has less effect on the voice.
  7. Early diagnosis is important especially in the subacute and chronic cases which are more amenable to treatment.
  8. Early treatment improves the prognosis.
  9. Complications. Neighboring inflammatory conditions tend to lower the resistance of the larynx.
  10. Financial status. Ample financial resources, making possible a prolonged "cure" necessarily enhance the prognosis.
- Treatment is considered under three headings, prophylactic, general and local.

1. Under prophylaxis is advised, proper care of mechanical and inflammatory conditions of the naso-pharynx, avoidance of abuse of the voice and of local irritants.
2. Since laryngeal tuberculosis is always secondary to pulmonary tuberculosis the main issue would be disregarded if the lung condition were not considered and dealt with.
3. Local treatment will vary with the individual cases. Need of vocal rest and treatment by various solutions looking toward cure or relief are discussed.—(*Am. Rev. Tub.*, 1918, Vol. 2, No. 1.)

### Typhoid Bacteriemia in Miliary Tuberculosis.

Arthur Bloomfield, of Baltimore, reports from the medical clinic of the Johns Hopkins Hospital, two cases of typhoid bacteriemia in which at autopsy only the lesions of miliary tuberculosis and not those of typhoid were found.

The first case, a colored boy of eight, was admitted to the hospital on the twelfth day of the disease. There was no history of any previous illness except whooping cough three years before. The onset of the illness had been with abdominal pain, vomiting and during the following week, headache, moderate abdominal pain and constipation. Four days before he became drowsy and dull and was put to bed. The dullness increased, there was muttering delirium, retraction of the head, rolling of the eyes and grinding of the teeth. On admission his temperature was 99.6° F. and the pulse 80. He was fairly well nourished, drowsy, unresponsive to questioning, but not in deep coma. The head was retracted, the neck rigid, the spine perfectly stiff, the extremities somewhat spastic and Kernig's sign present on the left. The pupils reacted normally but the eyes were slightly incoordinated. The breathing was irregular but no periodic. The cervical and epitrochlear glands were slightly enlarged. The lungs were clear except for a few fine rales in the right axilla and the heart showed nothing abnormal. The abdomen was tense and the spleen not palpable. The blood pressure was 120, urine clear, stools normal, red cells 5,100,000, with 68 per cent. of hemoglobin and the leucocytes 8,200. Thirty-five cc. of clear spinal fluid showed a cell count of 287 with 77 per cent. mononuclears and a positive globulin test. During the twelve days in the hospital repeated lumbar punctures showed the same findings and tubercle bacilli were never demonstrated. Fever was low and irregular, the pulse weak and variable. There was never any diarrhoea and the spleen was not felt. At one time the leucocytes rose to 11,200 with 85 per cent. polymorphonuclears. Death occurred suddenly in collapse on the nineteenth day.

On the thirteenth day of the illness B typhosus in pure culture was recovered from the blood. The Widal was negative on the eighteenth day, and there was nothing in the clinical course to suggest typhoid fever.

At autopsy the following anatomical diagnosis was made: Tuberculosis of the bronchial lymph glands; bronchopneumonia (tbc), miliary tuberculosis of the left lung with early cavity formation; miliary tubercles of the visceral pleurae, tonsils.

spleen and liver capsule, chronic fibrous pleurisy, bilateral; acute tuberculous meningitis; decubitus ulcers. The spleen, liver and intestines showed no histological changes. No cultures were made at autopsy.

The second case was that of a colored laborer, aged twenty-six years. The general health had been good. There was no history of typhoid fever. The onset had been with fever, malaise, headache and anorexia followed by abdominal soreness and slight cough. On admission on the tenth day he was rather dull. The lungs were clear, breathing not rapid, abdomen scaphoid, the right rectus a little tense especially in the upper portion. There was slight abdominal tenderness, the liver and spleen were not felt, the eyegrounds were normal. The red blood cells were 4,000,000 with 90 per cent. haemoglobin, the leucocyte 2,300. The urine showed febrile characteristics, the stools were normal. The Widal reaction was negative on admission and again eight days later. The blood culture made on the day of admission yielded *B. typhosus* in pure culture. Twelve days later the blood culture was negative. The patient was regarded and treated as a case of typhoid fever, but did not respond well. The temperature ranged from 100° F. to 103.5° F., the pulse varied from 75 to 140, for the most part between 100 and 110 with constant pulse temperature disproportion. Eleven days after admission he complained of epigastric pain. Eleven days after that there was a sudden sharp agonizing pain, and an exquisite tenderness in the epigastrium. The leucocytes were 2,640 with 80 per cent. polymorphonuclears. He was taken to the operating room immediately. An ulcer was found just below the pylorus, of the usual peptic type. It was partially excised and the defect repaired with omentum. He regained consciousness though he remained very drowsy, his pulse became weaker and he died within ten hours. The autopsy was made eight days after death and the following anatomical diagnosis recorded: fibrous pleurisy, caseous tuberculous lymphadenitis, cervical bronchial and mesenteric; tuberculosis of the lymphatic duct; general miliary tuberculosis; tuberculous fibrinous pleurisy; duodenal and gastric ulcers without tubercles. The intestines showed no abnormality.

The significance of the typhoid bacteriemia in these two cases must remain largely speculative. The coincidence of typhoid fever with other diseases has been frequently reported although most of the cases are unsatisfactory. The occurrence of typhoid fever without typical lesions has also been considered in the literature and it seems necessary to distinguish very clearly between typhoid fever and other infections with or without invasion by the typhoid bacillus. In these two cases it seems likely as suggested by Busse that the individuals were carriers of typhoid bacilli and that the invasion of the blood stream was accidental or secondary. Busse's idea that tuberculous intestinal ulcers may have been a portal of entry in his cases suggests that invasion in the second case may have been associated with the gastric ulcers. There is no *a priori* reason to believe that generalized tuberculous infection predisposes to invasion by typhoid bacilli.—(*Am. Rev. Tub.*, 1918, Vol. 2, No. 1.)

### Treatment of Papillomata and Ingrowing Toe-Nail With Formaldehyde.

Suldey describes a simple method for the treatment of papillomata and ingrowing toe-nail, which gives excellent results. For papillomata, especially venereal warts, an application is made once each day, in the evening for choice, of the ordinary solution of formaldehyde, formol, by means of a small swab of cotton, preferably on a holder. This is well soaked in a formol, and then each growth is touched on the surface. Cure depends on the size and number present, but may be expected in from four days to a fortnight. The surface of the wart becomes gradually blanched, and after the third day, the dead layers of tissue begin to get detached, to be followed shortly by complete disappearance of the growth. The application is painless and very easily borne. It only gives rise to a slight irritation, which passes off in two or three minutes. The formol must not be allowed to touch the healthy mucous membrane, although no serious result follows should this occur. If there is a large collection of these growths, it is advisable to deal with them in successive areas. When all have fallen off, a small superficial ulcer is sometimes left. This quickly heals by applying some drying powder—bismuth, talc, oxide of zinc, etc. Relapses have never yet been seen to occur.

For ingrowing toe-nail, the technique is practically on the same lines. The granulations are touched with the swab all over the seat of the lesion, and a thin layer of liquid is allowed to spread under edge of the affected nail. This is repeated daily. The pain stops almost at once, all inflammation subsides, and recovery is complete, on the average, in four or five days. Relapse of the condition is best prevented by avoiding the cause of the trouble.—(*Journ. de Méd. et de Chir. prat.*)

### Treatment of Infected Wounds with Dichloramin-T.

Wm. E. Clark, M. D., of Washington, says that Lieut. Walter E. Lee, of Philadelphia, working in the American Ambulance of the French service, speaks of the end-results obtained by the use of these germicidal agents as follows: "Where in the battle of the Champagne, 80 per cent. of the cases contained the gas organisms in the wounds when cultured and 60 per cent. had the clinical symptoms, in the battle of the Somme, but 20 per cent. had gas on culture and only 5 per cent. showed clinical symptoms. Our mortality in 1915 was 4.6 per cent., while in 1916 it was only 1.9 per cent." He goes on to state that during this period of development of antiseptics in 1915 and 1916, changes had taken place in the organization of the armies so that in the battle of the Somme the French wounded coming to the hospital at which he was working, had received their primary operation on an average of an hour and a half after the receipt of the injury. The primary operations were more thorough, 90 per cent. of the foreign bodies being removed with free incision and removal of dead and devitalized tissue, blood-clot, etc.

During the five months that Clark spent at this same base hospital, where the use of the Carrel-Dakin solution and later dichloramin-T was routine, the necessity for surgical removal of devitalized tissue, blood-clots, diseased bone, etc., before the antiseptic treatment of the wound was instituted, was very apparent. Moynihan and Crile have, within the last few months, emphasized this point, and on both the French and English fronts the wounds are now being dealt with according to this principle.

After two and a half years' experience with the different antiseptics, there seemed to be no doubt that the chlorin preparations were superior to all others. During the first three months of Clark's service at the American Ambulance, the Carrel-Dakin solution was used as routine practically in all the cases with infected wounds. There were certain faults with the Dakin-Carrel solution, however, which made them feel that a still better technique could be evolved. First, the neutral hypochlorite (Carrel-Dakin) solution is very unstable, necessitating its preparation almost daily. Secondly, the dilute 0.48 per cent. solution contained such a small amount of the chlorin that, if the concentration was lowered even a few points, its germicidal efficiency was decidedly impaired. Thirdly, the active chlorin was used up so rapidly when the solution came in contact with the wound exudate that it was necessary to renew the solution at least every two hours, night and day. Then, too, in spite of the weaker solution, there was still irritation of the skin surrounding the wound in many cases.

In all fairness to the Carrel-Dakin solution, Clark says that if the careful elaborate technique, as perfected by Carrel, Dehelly and Depage, is carried out, splendid results in the treatment of infected wounds can be obtained.

Dakin, realizing the faults of the neutral hypochlorite solution, endeavored to make a new non-toxic and non-irritating germicide which was capable of being used with less complicated technique. He found that the various hypochlorite preparations used in the treatment of infected wounds react with the proteins of any kind. The chlorin reacts with the amido-groups of form products called chloramins. These chloramins have a definite germicidal value and are not irritating to the tissues. Next, these chloramins were produced synthetically. By dissolving one of these chloramins (toluene-para-sulphon-dichloramin) in chlorinated oil of eucalyptol, he found he had a germicide that fulfilled the qualifications he was seeking. And, too, it could be used in strengths varying from 5 to 20 per cent., so that he had a much stronger germicide than the older neutral hypochlorite or Carrel-Dakin solution as it is more commonly known. Dakin, after evolving this new antiseptic or germicidal oil which he named dichloramin-T, asked Lee to test it out in his surgical service in Philadelphia. He also asked Major J. A. Sweet, who was at one of the base hospitals in France, to test it out in his service with the wounds received on the battlefield.

Lee's conclusions were as follows: "With dichloramin-T we have been able to obtain as good results as we have ever had when using the Dakin hypochlorite solutions with the complicated technique of Carrel. In addition we found—

"1. That skin irritation will not occur if the wounds are not covered with thick occlusive dressings. This means the use of the smallest possible amount of gauze dressing and bandage.

"2. The small amount of exudate from wounds treated with dichloramin, makes it practical to use these thin dressings, and in our dispensary, at the Pennsylvania Hospital, there has been a saving of 75 per cent. of the gauze and bandages formerly used. Further, a still greater saving in dressing material and time results from the decrease in the number of dressings required for each wound during the





**Little Belgian Girls Ravished, Mutilated and Murdered by Huns.**

These photographs were brought from Europe by one of the Y. M. C. A. secretaries at Camp Sherman, Chillicothe, Ohio. According to the secretary, the picture of the three girls on the right was taken and vouched for by a well-known Cleveland surgeon, now a major in the Medical Reserve Corps on duty in France. The name of the photographer of the two girls on the left is not given.

The statement of the secretary is to the effect that these girls

were ravished, mutilated and then murdered. The wound in the right thigh of the middle girl in the right hand picture is said to have been made by a bayonet. The condition of the faces of the third and fifth girls, counting from right to left, is undoubtedly due to decomposition.

These pictures have been presented to the *MEDICAL TIMES* through the courtesy of a well-known Cleveland physician, who obtained them from the Y. M. C. A. secretary in question.

period of healing. Rarely is it necessary to dress the wound, even during the first few days, more frequently than once in every twenty-four hours, and after that, intervals of forty-eight and seventy-two hours are usual.

"3. Dichloramin, unlike the aqueous hypochlorite solution, has no effect upon the knots of catgut ligatures, and no disintegrating effect upon the catgut itself. The occurrence of secondary hemorrhages in wounds treated by the Carrel method was not uncommon in our experience at the American Ambulance. Sweet reports that, in his 1,200 cases of major infected military wounds, there was not one secondary hemorrhage.

"4. Too great stress cannot be laid upon the value of dichloramin as a deodorant dressing. The absence of the usual disagreeable odors in our wards, containing cases with fecal fistulae, is a general observation. During the last two months it has been used routinely in the wards of the Ancological Hospital in Philadelphia. Where formerly these putrid, sloughing, malignant tissues were irrigated every two hours with all kinds of solutions, with indifferent success in the control of infection and with a persistence of the offensive odor, now they are packed lightly every six hours with gauze saturated with a 5 per cent. solution of dichloramin-T. Not only has the odor disappeared entirely, but the wound infections have been controlled."

Lee advised a careful surgical technique. The infected focus is excised if possible or in any event widely exposed so the germicide may have the opportunity to come in contact with the bacteria. Adequate drainage is provided according to accepted surgical principles. After the completion of the mechanical procedures, the wound surfaces are thoroughly covered with the 5 per cent. solution of the dichloramin-T and then the wound edges are held apart with a generous gauze pack saturated with the same strength of oil. A very light gauze dressing is then applied—not more than four layers. If the patient must remain in bed, a clothing cradle is placed over the wounded area to avoid displacement of the dressing;

if the patient be ambulatory, the fewest possible turns of a lightly applied gauze bandage, or adhesive strips placed over the edges of the dressings and not across the wound, may be used to keep the dressings in place. Care is always taken in applying dressings so that they shall not be impervious to air if eucalyptol is used as the solvent for the dichloramin-T; for it must be borne in mind that it is an essential oil and acts like all other essential oils when confined by air-tight dressings.

Lee is now using the dichloramin dissolved in chlorazene (liquid paraffin, chlorinated) and advises against the use of eucalyptol. This eliminates the necessity for the very light dressings, but unless there is a great deal of discharge from a wound the lighter dressings allow prompter and more comfortable healing. It is rarely necessary to renew the dressing oftener than once in twenty-four hours.—(*Med. & Surg.*, Feb., 1918.)

#### **Gastric Ulceration in Lymphadenoma.**

S. F. Reimann describes the case of a boy aged 14 years with widespread lymphadenoma of the superficial, mediastinal, and mesenteric glands and of the spleen, in which the walls of the stomach were infiltrated by lymphadenoma and the mucous membrane showed four small circumscribed punched-out ulcers with raised edges. The rest of the alimentary canal was normal. The histological appearances were those of lymphadenoma, though less well marked in the stomach than in the lymphatic glands. There were no gastric symptoms. References are given to four other cases of gastric ulceration in lymphadenoma, the author's case being the youngest.—(*Cleveland M. J.*)

Loblegeios had a case in which shrapnel ball was found lying free in the left ventricle which, during contraction, spun about in a definite manner. There was no discomfort.—(*Paris Méd.*)



## PERSONAL HISTORY OF APPLICANT FOR APPOINTMENT IN THE MEDICAL RESERVE CORPS, UNITED STATES ARMY.

Give your name *in full* (including your full middle name):.....  
The date of your birth:..... The place of your birth:.....  
When and where were you naturalized (if of alien birth)?.....  
Are you married or single?..... Have you any children; if so, how many?.....  
What is your height in inches?..... Your weight, in pounds?.....  
Give the nature and dates of all serious sicknesses and injuries which you have suffered:.....  
.....  
.....

Do you labor under any mental or physical infirmity which could interfere with the efficient discharge by you  
of the duties of a medical officer?.....  
If either parent, or brother, or sister has died, state cause and age in each case:.....  
Do you use intoxicating liquors or narcotics; if so, to what extent?.....  
Have you found your health or habits to interfere with your success in civil life?.....  
What academy, high school, college, or university have you attended? State periods of attendance from year  
to year, and whether you were graduated, giving date or dates of graduation:.....  
.....  
.....

Name any other educational advantage you have had, such as private tuition, foreign travel, etc.:.....  
.....

Give all literary or scientific degrees you have taken, if any, names of institutions granting them, and dates:  
.....

With what ancient or modern languages or branches of science are you acquainted?.....

When did you begin the study of medicine, and under whose direction? His residence?.....  
.....

How many courses of lectures have you attended? Names of colleges and dates:.....  
.....

When and where were you graduated in medicine?.....

(Fill this out and send it to the Surgeon General, U. S. Army, Washington D. C.)

Have you been before a State Examining Board? If so, state when, where, and with what result: .....

Have you had service in a hospital? If so, state where and in what capacity, giving inclusive dates of each kind of service: .....

What clinical experience have you had in dispensary or private practice? .....

Have you paid particular attention to any specialty in medicine; if so, what branch? .....

What opportunities for instruction or practice in operative surgery have you had? .....

Have you previously been an applicant for entry into the United States service? If so, state when, where, and with what result: .....

Are you a member of the organized militia? If so, state with what organization and in what capacity. ....

Have you been in the military or naval service of the United States? If so, give inclusive dates of service with each organization, designating it: .....

In case of war or threatened war, will you accept active service for duty with the Army, should your services be needed? .....

What occupation, if any, have you followed other than that of student or practitioner? .....

Present or temporary address:† .....

Permanent residence:† .....

I CERTIFY that to the best of my knowledge and belief the above statements are true.

Signature <sup>187</sup> .....

Date, ....., 191

Subscribed and sworn to before me, this.....day of.....A. D. 191

[SEAL]

[Signature and official title.]

†The candidate should give his present address for correspondence, and also his permanent address to which he desires commission sent should he be appointed.

FORM 148  
MEDICAL TIMES  
W. D. S. G. O.  
(Revised March 6, 1912)  
July 1, 1917

M. D.

OF

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FURNISHES PERSONAL HISTORY

IN CONNECTION WITH

APPLICATION FOR APPOINTMENT

IN THE

MEDICAL RESERVE CORPS,  
U. S. ARMY

Inclosure



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## Rank vs. Efficiency.

We are only mildly interested in the Owen Bill over here (in France) where a man is esteemed less for his rank than for his ability to do things. The prevailing opinion among the officers of the Medical Reserve Corps is that, while a few of the prominent majors who occupy important positions as surgical directors are entitled to rank as lieutenant colonels or colonels, great injustice has been done to hundreds of fine young fellows who have been in foreign service for six or eight months without recognition or advancement, while their associates at home have been promoted after two or three months spent in a training camp or office. This is the crux of the whole matter and until they have been rewarded, there seems to be no reason why the older men should be advanced to the rank of brigadier or major general.

Personally, I have always been opposed to promotion except as a legitimate reward for actual service, and my position is even more uncompromising than it was at the outset, since I have observed the practical work of the regular and Reserve Corps along the whole line from the Port of Debarkation to the trenches.

I am proud of the record of the members of the Medical Reserve Corps. They have been tried out under all conditions and few have been found wanting. We do not use the word "sacrifice" over here, only *duty*. The individual does not count at all. The only touchstone is efficiency. It is well for those who are to come over here to bear this constantly in mind, as it will save them from cherishing false ideas of their own importance, which will be rudely dispelled.

In the Advance Clearing Station, at which it has

been my great privilege to serve for two months, I have been impressed by the fact that it would be almost a crime for any surgeon to operate unless he had served a long apprenticeship in a clearing station on the British, French or our own front. We cannot learn military surgery at the expense of our brave boys who deserve the *best* that we can give them. I am more and more impressed with the fact that no amount of surgical experience in civil life is sufficient to justify a man in thinking that he can start out at once to do military surgery. I feel that only a selected number of trained surgeons should be allowed to operate independently, although there will be, of course, ample opportunity for others to *learn* as observers and assistants. I say this without the slightest thought of giving offense to any of the competent surgeons who will come over here for duty. It simply means that there is a wide difference between civil and military surgery. To control this is the important function of our surgical directors and they are most conscientious in carrying out the plan adopted for all our evacuation hospitals.

This may seem to be a poor outlook for the hundreds, or rather thousands, who expect to "do surgery" as soon as they arrive in France. They should forget their desires temporarily. Military surgery is like a new thing, even to a surgeon of extended experience in civil practice. If they view it from any other standpoint, they simply cherish the "pride that goeth before destruction."

To tell the truth, the first aid and dressing stations offer enough excitement and opportunities for service to satisfy the most zealous seeker after "the real thing" and I must confess that my visits to some of my young friends in their subterranean abodes, under more or less constant shell fire, have made me feel more acutely than any other experience that age is a serious handicap when it comes to service in the zone of action.

To any man who chafes at paper work or the routine of camp and hospital, there is nothing like it and higher rank simply relegates him to a consulting or administrative position when his junior is at the front. The surgeons have no time to worry about promotions, as their work is too engrossing. It is a sufficient reward to feel that one is able to minister to the wounded and dying and so to repay, in some degree, the immense debt that we owe to the gallant fellows who have wiped out the memory of our years of wavering and unpreparedness and have brought memorable honors to their country.

H. C. C.

## A Probable Factor in Trench Foot.

The known etiological relation of nicotine poisoning to that form of gangrene dependent upon thrombo-angiitis obliterans suggests that the same type of chronic poisoning may also bear some causative relation to trench foot. We suppose it is a question of special susceptibility to the vaso-constrictor effects of tobacco. The coldness of the feet brought about by excessive smoking is a familiar experience. Given exaggerated neurotic responses in predisposed individuals and the result in civil life is thrombo-angiitis obliterans. Given prolonged exposure in the trenches, together with such factors as rubber boots, and the result may be trench foot. In both instances tobacco plays some part.

## Comparisons.

The general practitioner of an older day had some reprehensible ways of doing things not altogether chargeable to the then state of medical knowledge. Probably the most serious count against him was his defi-

ciencies in the way of surgical cleanliness. Then he was apt to be derelict in the matter of diagnosing early cancer of the uterus. And he was not sufficiently alive to the necessity of prompt intervention in certain medical and surgical circumstances.

But nowadays we find ourselves going back to *some* of the older physician's conservatism. Just as he waited in acute salpingitis so now do we wait. It is true that we now intervene when the acute stage has subsided, whereas he did not do anything at all. Of course, we have moved up, for we not only have a diagnostic advantage over the older physician, knowing clearly the pathology we are dealing with, but we have a perfected technic when we do make a move. At the same time the question is pertinent: when we do find ourselves at bay is our conservatism quite so masterful as that of the older practitioner? Probably not, for conservatism was a studied and finally an ingrained habit of life and thought with him at all times and in all cases.

We have developed the bad habit of thinking of the older practitioner in terms of deficiencies, whereas the truth is that he possessed a number of admirable traits and qualities that we lack. He played a *human* part in his professional relationships that was *real*. We, on the other hand, possess a number of capacities that he lacked quite utterly.

Our older colleague made too many vaginal examinations in the course of labor. For a time we thought that our rubber gloves prevented infection, but gradually we found that it was impossible to sterilize the vulva and that we, too, were getting septic results like the older man. One may say that it is only recently that we have actually forged ahead and learned to avoid infection by making rectal instead of vaginal examinations, supplementing the findings made out by this route by abdominal palpation. While muddling along and groping for the proper technic we certainly have not presented a more edifying spectacle than the older man.

The point which we wish to make is that the older and the present generations of physicians assay pretty much alike, in so far as their community worth is concerned, although this fact is not apparent upon a superficial view.

We are not denying that progress has been made; we have admitted it in sketching our blundering course in obstetric asepsis.

We do not affirm that we have fallen back at any point; but we insist that the older physician possessed qualities that we cannot possess, because of changes in the social order—and this is matter for regret.

There is an eternal value that certain physicians have always possessed. Who would say that a Cullen, or a Harvey, or a Thomas Browne would not, were he alive to-day, be of greater value to the community than most of our contemporaries? And who would contend that an average practitioner of to-day, set back into the generations that the physicians we have named represented, would have very much to confer upon his "benighted" confrères of an earlier day?

It is that eternal value which counts. The test of whether a medical man is really of some account to the race and the profession is whether he would have fitted in well three hundred years or more ago, and whether he would fit in well three hundred years or more hence. This is the test that the Cullens and the Harveys and the Brownes meet easily.

And finally comes General Gorgas, in his June address at the Bellevue-University Medical School, declaring that what the Army needs above all things is the high class general practitioner.

In this deliverance General Gorgas furnishes proof—if that were needed—of his great wisdom.

And the general practitioner can hardly believe his ears, for he has grown rather accustomed to another kind of talk.

#### Possible Injustice Under the Anti-Loafing Law and a Proposal to Extend Its Operations.

We are in sympathy with the general intent of the anti-loafing law, which is an essential war measure, but as physicians we cannot ignore the fact that a large proportion of those against whom the bill is directed are grossly unfit physically or mentally, in short, unemployable. While the law itself takes this into consideration some of those charged with the enforcement of it may be over-zealous in rounding up and putting to work loafers who are loafers because they are sick.

The examinations of the "guests" of the municipal lodging house in Manhattan have shown that about half the sojourners are really sick men.

It would probably be a fair estimate to say that any work at all would be cruelty if imposed upon a quarter of our loafers throughout the state.

We have in mind an instance of a man aged about forty-seven who has been unable to do any work for years, although apparently an exceptionally good physical specimen. It is not likely that any lay authority charged with the enforcement of the anti-loafing law would look upon this sample of "health" with anything but a determination to send him to the workshop, and unless such a man's medical interests were properly safeguarded in some way he might be dealt with unfairly, albeit in good faith and with no unkind intent. For this man has for a long time had a systolic blood pressure of 245 and a diastolic of 135. He suffers from severe head symptoms and mental depression, and his condition is apparently irremediable, only moderate improvement having taken place.

To put to work, more or less unwittingly, such people as are typified somewhat by the case we have cited, would be a farce the economic and moral results of which would be bad for the state.

In this connection one cannot help thinking of the large number of able-bodied women belonging to the leisure class who, it seems, are not to be invited to engage in our industrial productivity. Why should they not be enlisted for continuous service in the industries or full-time work having to do in some intensive manner with winning the war? Many of them are doing laudable work, as far as it goes, but they are certainly not being held to the same war and democratic standards as the men.

In England this matter is being settled quite thoroughly, without camouflage or false chivalry.

Why not here?

Many of the activities of this leisure class are valuable to the nation at war, but only in an intermittent or spasmodic way. It is not necessary to particularize. It is the conspicuous spasmodicity of their efforts that gives great hordes of them away.

In such cities as Toledo, Cleveland, Philadelphia, Indianapolis, Springfield, Detroit and Rochester a way has been found to do away with spasmodic drives, thus releasing a large number of "workers" for sustained activities.

In this war for democracy enormous pressure should be put upon the slacker of the leisure class with a genius for convincing the simple minded that she is a super-patriot.



### Sick Room Camouflage.

Even in tragic circumstances in the sick room one cannot help being mildly amused by such things as the ill-concealed anxiety of impecunious relatives who are looking forward hopefully to the prosperous patient's demise. With what consummate tact (or tactlessness) the said relative inquires as to the sick man's condition and prospects. You, the physician, have said that the patient would live for forty-eight hours. The relative says that he (or she) cannot see how the dying man can possibly live that long. The amateur clinician calls your attention to the cyanosis of the patient's lips and hands and to his labored breathing. Are you sure that one so far gone can actually remain alive for forty-eight hours?

There is an illy suppressed groan when you maliciously remark that such cases have sometimes been known to live a week. For a moment the relative himself looks cyanotic. Then you relent and hint darkly that some unforeseen circumstance may possibly end the scene in twenty-four hours, whereupon there is an audible sigh of relief.

What can be more exasperating to an anxious and impecunious relative than the extraordinary periods of relief and prolongation of life that follow upon the exhibition of morphin hypodermatically in certain desperate cardiac cases?

We are well aware that the conventional thing is to see only the genuine manifestations of affectionate concern on the part of loving kin. We try to see only this side of human nature in the sick room because we like to see humanity's best side. But every physician knows that the other side is sometimes displayed, and we cannot help seeing it, so that it, too, may properly be discussed.

What a joy it is when some ghoul of the kind we have sketched is discomfited by the recovery of the desperately ill patient?

In such circumstances the physician can derive pleasure out of his own prognostic discomfiture.

No doubt some of the caustic judgments that are passed upon us have their origin in the minds of these exponents of sick room camouflage. And the circumstances may not always revolve around desperate cases. Perhaps we are called in to attend somebody who is only moderately ill, and the hope in the mind of the impecunious ghoul is that we may prove incompetent or unskilful and do some grievous harm that will result tragically. Instead we achieve clinical peace with victory, winning the plaudits of good souls, but also the hatred of the ghouls.

Thus therapeutic success may feed our sense of humor as well as make us better physicians.

Let us add to the gloom of the ghouls as far as in us lies.

### Unwilling Merlins.

You have been ill, or out of town on vacation, and upon your resumption of work you find that Mr. Smith has been treated by a healer whose personality and methods he greatly admires. Or Mr. Brown has been inducted into the silences by some psychic magician of equally adorable endowment. Or Mrs. Jones has been entranced by the kneadings of some mechanist freak who is just a perfect dear. Or Mrs. Robinson has been blissfully circuted with the very source of all health by some turbaned and sheeted Swami.

You reflect upon all this, and you find no reason in it all to feel unduly puffed up and flattered. The dis-

tressful thought occurs to you that some of your patients see some freakiness in yourself, rather than what you would wish them to see.

This sort of thing is inevitable, and the factors lie deep in the minds of our heterogeneous clientele. People transfigure us into wizards even if we are not wizards. It is a trick of humanity to insist upon magic rather than Hippocratic foundations. It is therapeutic Hippocrene that is sought by our romantics, and not Hippocratic foundations.

And so to the impressionable patient, craving for the supernatural or at least for the *outré* and bizarre, you, the sound scientist and steady clinician, are figured as a Merlin after all.

It can't be helped.

## Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

### A Doctor's Idea of a Perfect Day.

He has not been called out during the night preceding. He turns over at 7 a. m. and sleeps until 8.

He is not called to the 'phone just as he steps under the shower.

He is not summoned to attend to a bleeding wound just as he begins to eat his breakfast.

He reads *some* of the morning paper without interruption.

He receives a number of large checks for professional services.

He starts out on his round of visits.

He finds a satisfactory pulse pressure in his two pneumonias.

He finds the paralysis in a case of apoplexy almost cleared up.

He lunches with an old college mate.

He buys some more Liberty Bonds.

He is called to an obstetric case which delivers itself normally.

He receives a negative Wassermann report on his last salvarsan case.

He finds that a tuberculous patient has gained ten pounds.

He dines well.

He sees a good play in the evening.

He smokes his pipe.

He dreams of a successful revolution in Germany.

### Soul Dissection.

A man can stand being told that he must submit to a severe surgical operation, or that he has some disease that will shortly kill him, or that he will be a cripple or blind for the rest of his life; dreadful as such tidings must be, we do not find that they unnerve the greater number of mankind; most men, indeed, go coolly enough even to be hanged, but the strongest quail before financial ruin, and the better men they are the more complete, as a general rule, is their prostration. Suicide is a common consequence of money losses; it is rarely sought as a means of escape from bodily suffering. If we feel that we have a competence at our backs, so that we can die warm and quietly in our beds, with no need to worry about expense, we live our lives out to the dregs, no matter how excruciating our torments. Job probably felt the loss of his flocks and herds more than that of his wife and family, for he could enjoy his flocks and herds without his family, but not his family

—not for long—if he had lost all his money. Loss of money indeed is not only the worst pain in itself, but it is the parent of all others. Let a man have been brought up to a moderate competence, and have no specialty; then let his money be suddenly taken from him, and how long is his health likely to survive the change in all his little ways which loss of money will entail? How long again is the esteem and sympathy of friends likely to survive ruin? People may be very sorry for us, but their attitude toward us hitherto has been based upon the supposition that we were situated thus or thus in money matters; when this breaks down there must be a restatement of the social problem so far as we are concerned; we have been obtaining esteem under false pretenses. Granted, then, that the three most serious losses which a man can suffer are those affecting money, health and reputation. Loss of money is far the worse, then comes ill-health, and then loss of reputation; loss of reputation is a bad third, for, if a man keeps health and money unimpaired, it will be generally found that his loss of reputation is due to breaches of parvenu conventions only, and not to violations of those older, better established canons whose authority is unquestionable. In this case a man may grow a new reputation as easily as a lobster grows a new claw, or, if he have health and money, may thrive in great peace of mind without any reputation at all. The only chance for a man who has lost his money is that he shall still be young enough to stand uprooting and transplanting without more than temporary derangement.

The foregoing is a summary of certain beliefs of Samuel Butler, in his *Way of All Flesh*. Out of his first hand experience the physician ought to be able to tell how true it is. Seemingly cynical, the more one studies it the more one is compelled to admit that Butler has stated the very thing most masterfully that has made us feel vaguely disgusted with human nature over and over again.

## Public Health

### Sage Commission's Plan to Deal With Defectives.

The first steps toward the solution of the perplexing problems arising from the prevalence of uncared-for feeble-mindedness in the community are suggested in the report of the Hospital Development Commission which has been submitted to the New York Legislature. The chief recommendations of the commission are: "First: Establish a definite State policy by creating a board of commission which shall have the same powers over the feeble-minded as the State Hospital Commission has over the insane. The makeup of such a board is difficult to determine both on account of present overlapping laws and also on account of certain constitutional provisions which must be considered.

"Second: Adopt a Statewide commitment law.

"Third: Make a census as complete as possible of all the feeble-minded in the State obtaining all possible light on their family histories and surroundings. This is a task which at first glance seems almost hopeless on account of the indicated labor and expense, but these difficulties are more apparent than real. We already have established classes for the mentally retarded in our public schools and through these classes we can determine the number of the feeble-minded among the backward children. Also a great deal of the study of surroundings and heredity can come through the schools. Through the courts (especially the juvenile courts) if the necessary facilities are granted we can get a great deal more light. In our prisons and reformatories which today are full of feeble-minded persons (the proportion in some cases being estimated as high as 60 per cent.) the number of this class can be easily determined.

"Fourth: After these steps have been taken we can determine or rather the proposed commission can determine, the number of persons needing institutional care, the kind or kinds of institutions needed to care for these persons and the extent to which the State should go in dealing with the problem. Until

these steps are taken we can never solve the problem and will remain in the same muddle in which we now find ourselves."

The report shows that the State's four present institutions for the feeble-minded differ widely in size, character and methods, and all operate independently. All of them are crowded and have long waiting lists. The report on this subject says:

"The situation is this. We have four distinct institutions for the feeble-minded. 1st. At Syracuse, originally intended for those of this class who are susceptible of education. 2nd. The Rome Custodial Asylum intended originally only for the very lowest grade. 3rd. The institution at Newark for women of child-bearing age. 4th. Letchworth Village, originally intended as an epileptic institution but now definitely a feeble-minded institution for all degrees of mental defect.

"Each of these institutions is operating under the separate law which created it, its policy entirely shaped by its superintendent and board of managers, subject only to fiscal control by the fiscal supervisor and visitation and inspection by the State Board of Charities.

"There is no State policy as applied to all of these institutions. There is no State control except fiscal control and there is no responsible body in the State which can say authoritatively 'This institution is developing along unintelligent or unscientific lines. Let us change it.'

"These four institutions, when Letchworth Village is completed, will accommodate approximately 6,000 persons.

"It is estimated that we have 30,000 feeble-minded persons in the State but this estimate is based only on the result of surveys of certain subdivisions of the State applied proportionately to the rest of the State.

"We have today cared for practically all our idiots and a large proportion of our known imbeciles, but we still have to adopt some policy and then provide for such of our 'morons' or higher type feeble-minded, as need institutional care. If we have 30,000 or more feeble-minded in the State the problem is not to build institutions to care for them as is done for the insane. The problem is at once less expensive and more complex. Apart from the idiots and imbeciles who of course need institutional accommodation, there is a large class ranging from just above the imbecile to just below the normal who must be considered and who really constitute our problem.

"It is now known that feeble-mindedness is caused by a positive defect in the brain, that this defect is incurable because it is not a disease but a lack, and that a feeble-minded person of the mental age of ten or twelve can never grow mentally older. But this person through training can become mentally a very efficient child of ten or twelve and can often be made a self-supporting, self-respecting member of the community.

"We have learned that there are certain families possessing a marked prepotency for evil, which families are known. There are undoubtedly many other families of like character not yet discovered. It is the judgment of all, who have knowledge on this subject, with whom we have talked, that the feeble-minded children of such families should be confined in institutions and kept there because if left at large in the community their life histories are those of crime, immorality and drunkenness and their illegitimate children increase and intensify our burden indefinitely. On the other hand, many of these unfortunates need only a few years of institutional training to enable them to go out into the world and earn a living, perhaps not of the best, but sufficient to prevent their becoming a charge on their community or State. Apart from these there are a very large number who, if their home surroundings are decent, need no institutional care and will never become a burden on the public."

The report emphasizes the serious results arising from the State's failure to segregate feeble-minded women of child-bearing age.

"Feeble-minded women of child-bearing age who have already had sex experiences," says the report, "should not be allowed at large without careful supervision, for it goes without saying that the State for its own protection must as nearly as possible shut off at its source the alarming increase of those who inherit a lack of mentality."

The Commission believes that special provision should be made for defective delinquents, that is the feeble-minded who are viciously or criminally inclined, whose presence at large in the community is a constant source of crime and expense and who are so turbulent and disorderly that they cannot be treated effectively in an ordinary institution for the feeble-minded.

The Commission is not prepared to make definite recommendations as to the details of a plan to provide for such feeble-minded offenders against the law. It points out that the present reformatories of the State contain a very high percentage of feeble-minded persons. The population of the State's reformatories and prisons is decreasing on account of war, on account of industrial prosperity, and the operation of the parole and probation systems. The Commission raises the question



whether it will not be possible and feasible to reclassify and redistribute the population or all of the existing reformatories, so that one or two of them may be used for defective delinquents who are not susceptible of reform and the other reformatory institutions kept for their original purpose, namely for reform of normal offenders.

### Cigarette Smoking and Tuberculosis.

G. B. Webb, of Colorado Springs, publishes a short report on the effect of inhalation of cigarette smoke on the lungs as observed in over 3,000 chest examinations of soldiers recently examined for tuberculosis. Bronchitic conditions were noted, characterized by the presence of ronchi or coarse sibilant rales and sometimes also by coarse moist rales. The majority of cigarette smokers have these ronchi while the majority of non-smokers, pipe smokers and cigar smokers do not. Among the soldiers deemed unfit for service because of tuberculosis a larger percentage of non-smokers than smokers were discharged. If non-inhalers who do not show ronchi are added to the non-smokers then 30 per cent. of those discharged on account of pulmonary tuberculosis did not inhale cigarettes.

Webb concludes that his studies at least suggest that the inhalation of cigarette smoke does not aid in the outbreak of pulmonary tuberculosis.—(*Am. Rev. Tub.*, 1918, Vol. 2, No. 1.)

### State Quotas of Babies to be Saved During Children's Year.

The Children's Bureau of the U. S. Department of Labor announces the number of lives each State is asked to save in the campaign to save 100,000 babies and young children during Children's Year beginning April 6. Announcement of the purpose to wage such a campaign was made some time ago by the Children's Bureau and the Child Welfare Department of the Woman's Committee of the Council of National Defense, and the response, which has surpassed all expectations, indicates that efforts to promote the health and welfare of children are to be more vigorous this year than ever before.

The saving of 100,000 lives of children under five is only one part of the big program for the welfare of 30,000,000 children under fifteen in the country. It is realized by all concerned that the standards of child protection must not be relaxed during war time, and the United States is expected to profit by the experience of other warring countries, where the importance of safeguarding childhood is emphasized as never before.

The campaign to save 100,000 lives of babies and young children in the United States during the second year of the war is to be inaugurated by a National Weighing and Measuring Test beginning April 6, the anniversary of the declaration of war by this country. In announcing the quotas the Children's Bureau said:

"In order that each State may feel responsible for a definite number of lives to be saved, quotas have been assigned to the various States, the apportionment being made on the basis of the population under five according to the 1910 census. This, of course, cannot take account of the varying death rates in the different States where death rates are known.

"In about half the States of the country, comprising nearly one-third the population, the registration of deaths was not sufficiently complete to warrant their inclusion in the registration area when the latest reports were published. The registration of births is seriously deficient in a still larger number of States. For that reason the apportionment of quotas of infant lives to be saved could not be made upon the basis of the infant mortality rate, which is based on the number of deaths under one year and the number of recorded births. Thus the only basis for the assignment of quotas uniformly applicable to all the States is the population as shown by the Federal census. As the effort for the hundred thousand lives applies to the specially hazardous period of life under five years of age, the quotas are calculated upon the basis of the population under five.

"In making the apportionment on this basis it was realized that a high mark is thus set for States in which the death rate among young children is already low. On the other hand, the mark set may be low for some States where the child death rate is excessively high. It does not appear to be possible to avoid some situations of this kind by any method of apportionment that could be devised with the data now at hand. If the registration of births and deaths were complete in all the States, an apportionment of quotas of the 100,000 lives to be saved by the various States could be made upon a different basis."

Plans for the celebration of Children's Year, of which the saving of 100,000 lives is one feature, are being developed by the Children's Bureau in co-operation with the Child Welfare Department of the Woman's Committee of the Council of National Defense. The safeguarding and protection of children

is looked upon as a patriotic duty in view of the unavoidable wastage of human life incident to war. It is expected that the 5,000 or more local committees of the Child Welfare Department of the Woman's Committee will be able to carry the campaign to every community in the United States. This is looked upon as essential to the success of the movement, for in the last analysis, every community must save its own babies if they are to be saved at all. State and Federal agencies, either official or voluntary, can make plans and offer suggestions but each community must bear its full share of responsibility in making the campaign a success.

The quotas assigned to the various States are given in the following table:

	Population under five 1910 census	Quota of lives to be saved
Total .....	10,631,364	100,000
Maine .....	71,845	676
New Hampshire .....	39,581	372
Vermont .....	34,171	321
Massachusetts .....	328,886	3,094
Rhode Island .....	54,098	509
Connecticut .....	112,244	1,056
New York .....	898,927	8,455
New Jersey .....	266,942	2,511
Pennsylvania .....	884,270	8,318
Ohio .....	479,475	4,510
Indiana .....	275,524	2,592
Illinois .....	597,989	5,625
Michigan .....	298,554	2,808
Wisconsin .....	256,171	2,410
Minnesota .....	226,840	2,134
Iowa .....	236,063	2,220
Missouri .....	360,503	3,391
North Dakota .....	82,399	775
South Dakota .....	73,489	691
Nebraska .....	140,096	1,318
Kansas .....	191,519	1,802
Delaware .....	20,045	188
Maryland .....	137,714	1,295
District of Columbia .....	26,669	251
Virginia .....	268,825	2,529
West Virginia .....	169,118	1,591
North Carolina .....	332,792	3,130
South Carolina .....	228,459	2,149
Georgia .....	376,641	3,543
Florida .....	96,956	912
Kentucky .....	294,503	2,770
Tennessee .....	294,591	2,771
Alabama .....	311,716	2,932
Mississippi .....	259,661	2,442
Arkansas .....	230,701	2,170
Louisiana .....	224,069	2,108
Oklahoma .....	241,904	2,275
Texas .....	538,984	5,070
Montana .....	38,323	360
Idaho .....	40,444	380
Wyoming .....	15,331	144
Colorado .....	82,562	777
New Mexico .....	45,285	425
Arizona .....	24,778	233
Utah .....	52,698	496
Nevada .....	6,383	60
Washington .....	108,756	1,023
Oregon .....	60,211	566
California .....	193,659	1,822

### The Efficacy of Vaccination.

E. S. Godfrey, Jr., epidemiologist of the New York State Department of Health, remarks that the value of vaccination as a preventive of smallpox is attested historically and in the every day experience of those who see many cases of the disease. Until vaccination became general, smallpox was more prevalent than measles is today. It was also peculiarly a disease of children, since few reached maturity without being exposed. Then there was no known means of conferring immunity except by having the disease itself, either through the ordinary channels of infection or by inoculation. The disease was usually very fatal, except when it occasionally prevailed in a mild form. The French physician de la Condamine stated in 1754 that every tenth death was due to smallpox. It disorganized and even destroyed armies of invasion and armies of defense, and more than once determined for the time being the map of Europe.

Today how different! Armies of an immensity such as the world has never before seen have been contending for nearly four years, living in trenches, dugouts and crowded billets,

pestered with vermin and plastered with filth. Yet smallpox has been the least of the worries of the men, the medical departments, or the general staffs. Vaccination at the time of enlistment has proved sufficient.

In 1870 German army regulations did not require vaccination. Smallpox became prevalent among the troops during their occupancy of French territory. Following their withdrawal and their dispersion to their home stations, the disease prevailed so extensively in Germany that in 1874 the present vaccination law was enacted. This law requires vaccination during the first year of life and again at the age of twelve. Smallpox has since become so rare in Germany that many physicians with extensive practices have never seen a case. In the German army itself there were but two deaths from smallpox during the period 1874-1914. During the invasion of Serbia in 1915, though smallpox prevailed quite extensively among the wretched remnants of the civil population, though troops succumbed to typhus, dysentery, cholera, and other scourges incident to that wanton devastation of a nation, smallpox passed them by.

Turning now to the every-day experience of physician, health officer and epidemiologist two general statements may be made: (1) It is the unvaccinated community that has a smallpox epidemic; (2) it is the unvaccinated individual who has smallpox. New York City and Chicago, the two largest cities in the United States, both of them well vaccinated, have not had a smallpox outbreak for so long a time that even most health workers have forgotten when they last occurred.

It is the usual thing to find that the community with a smallpox outbreak on its hands is one in which there is no compulsory vaccination and that but a very small percentage of the community have availed themselves of this protection. Anti-vaccination centers are especially favorable spots for smallpox epidemics. Niagara Falls, N. Y., and Zion City, Ill., may be cited as examples. The more usual thing, however, is a community that is apathetic as regards smallpox until smallpox appears and has spread to dangerous proportions. As to the second point—the relation of smallpox to the unvaccinated individual—numerous statistics have been compiled by observers at different times in various parts of the world. They all tell the same story—that the vast preponderance of cases occurs in unvaccinated persons. The statistics of Minnesota for the four years 1913-1916, inclusive, show that 7,691 cases of smallpox were reported to the State Board of Health during that period, in 6,421 of which information was obtained as to when, if ever, they had been vaccinated; 5,942 or 92.5 per cent had never been vaccinated, 343 or 5.3 per cent had been vaccinated more than seven years previously, 116 or 1.8 per cent had been vaccinated within seven years. The statistics of six states for 1916 reporting the vaccinal status of smallpox cases show that of 4,216 cases, 3,901 or 92.5 per cent had never been vaccinated, 239 or 5.7 per cent had been vaccinated more than seven years before, while 76 or 1.8 per cent had been vaccinated within seven years. This would seem to be sufficiently convincing evidence of the predilection of smallpox for the unvaccinated individual and yet it probably understates the truth.

No doubt many of the statements as to previous successful vaccinations are unverified by a critical examination of the scar. Unfortunately the idea is widely prevalent that any kind of a sore following vaccination constitutes a "take" or successful vaccination, provided a scar results. A certain percentage of these scars are the result of secondary infection which have destroyed the specific virus of vaccinia, upon the absorption of which immunity depends. Other scars offered in evidence of vaccination have not even a remote connection with vaccination, but are the results of burns, injuries, or destructive skin lesions, advantageously located for the purpose of deception. These scars lack the pits or foveations characteristic of a true "take" and will hardly deceive the experienced eye.

As to the period of immunity afforded by vaccination it can only be said that it varies with different individuals just as the immunity conferred by an attack of measles, scarlet fever, or smallpox itself varies with the individual. As an average it may be stated as seven years. The immunity gradually decreases, but is probably always greater against smallpox than against revaccination. Smallpox occurring within five years after a successful vaccination is exceedingly rare, though Kitasato's table shows that 51.1 per cent of persons successfully vaccinated are susceptible to revaccination at the end of that period. Certainly only a minute fraction of this percentage is susceptible to smallpox within that period, for it is no uncommon experience to find whole families down with smallpox except the vaccinated individuals among them.

#### SUSCEPTIBILITY TO REVACCINATION.

(KITASATO)

After 1 year.....	13.6%	After 4 years.....	57.3%
2 years.....	32.9%	5 years.....	51.1%
3 years.....	46.6%	6 years.....	63.8%

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7 years.....	72.5%	9 years.....	85.0%
8 years.....	80.0%	10 years.....	88.6%

In an outbreak personally investigated by the writer, among 104 cases there was not one case who had been vaccinated within fifteen years. This outbreak occurred in a coal mining town of about 400 population, a large proportion of whom were foreign-born and who had been vaccinated on entrance into the United States. The disease had prevailed for two months prior to the investigation masquerading under the names of "grip followed by eruption" and "the itch that's going 'round." Exposures were numerous and intimate. Yet it was only the free-born American, with one exception, who contracted the disease. The one exception had been vaccinated 17 years before. The American-born children of the foreigners had the disease; the foreign-born children and adults did not—they had been vaccinated.

Revaccination—that is, successful vaccination on two occasions—usually confers a lifelong immunity. This immunity is as nearly absolute as anything can be in this world.—*Health News*, March, 1918.

## War Activities

### The War and Interns in Special Hospitals.

For two reasons the office of the Surgeon General of the Army has signified its desire to promote the education of interns in proper hospitals for as long a period as the exigencies of war will permit: Primarily, that the future military surgeon may begin his medical career with as much professional experience as possible; secondarily, so that the organization of hospitals for civilian treatment and for instruction of physicians and nurses may not be unnecessarily disrupted.

How far do these considerations apply to certain special hospitals such as hospitals for women, children, consumptives, eye and ear cases, and insane, and what should be the policy of the Army with regard to interns in such institutions?

It seems clear that thorough education in all types of cases treated in the above, except maternity and children's hospitals, will have definite value for military purposes and that the same policy with regard to interns in these should be followed as in general hospitals. Probably the children's hospitals may be placed in the same category as the others, as the medical and surgical experience gained therein is such as to afford a substantial foundation for military service, and this taken into consideration with the desire to preserve the hospital organization should warrant the placing of children's hospitals on the same basis as general hospitals so far as intern service is concerned.

With hospitals for women the situation is very different. Service therein is intensive in a branch of medical science which has no direct relation to military needs and therefore such hospitals cannot receive the same consideration as other hospitals as places of preparation for military service.

On the other hand, it would seem that in such hospitals the organizations could be properly maintained by the aid of personnel not fitted for army service. Not every medical student is eligible for active military service of the kind to be anticipated and desired by the young medical man who has at last reached the place in his career where he can be of great value to the country.

General hospitals should give first choice to those who are physically fit for the work in the Army and Navy while young men who are not physically handicapped should equally seek internships in hospitals where they can obtain the best possible training for military service. Those who by reason of physical disqualifications are not entitled to enter the country's service in its military branches should welcome the opportunity to aid in its general efficiency by engaging in other work essential to welfare.

Thus, by co-operation between hospitals and between hospitals and student, can we come nearer a solution of the tremendous problem of making the supply of medical men meet the requirements of war.

With the use of women physicians, medical students and the proper allotment of student interns to places where they can be of the greatest use according to their qualifications, it



would seem that an obvious difficulty may be at least minimized and the authorities in medical schools can aid materially in advising their young men as to the proper course to pursue. Some men who have a special interest in obstetrics and gynecology may dislike to abandon the opportunity to specialize in such branches during the period of their internship, and surely the country cannot afford to be without the services of men so especially educated, but the needs of our fighting men are immediate and imperative and our young men will no doubt be willing to sacrifice their personal ambitions for a time as many of the older men of the profession have already done.

The foregoing is the result of interviews with officers of the Surgeon General's Department by a representative of the American Hospital Association. It has been submitted to them and is believed to fairly represent the policy of the Department with regard to interns in special hospitals.

### The U. S. Public Health Service.

According to rumor, legislation will be attempted during the present session of Congress relative to the Public Health Service, which is now operated as a part of the Bureau of Medicine and Surgery of the Navy, the *Army and Navy Journal* reports. If this legislation has for its object the permanent assimilation of the Public Health Service with the Navy it will be welcomed by the two corps, for the co-operation during the past year is recognized as having been of mutual benefit, and it has emphasized the importance of unifying their work. The officers of the Bureau of Medicine and Surgery speak in the highest terms of the services which have been rendered by the Public Health Service and attribute the maintenance of the excellent health rate in no small degree to the co-operation and efforts of the officers of that service. The assimilation of the two corps is looked upon as logical also from the direct harmony in the functions of the two organizations. Notably this is true in the hospitals, which are known as the Marine Hospitals, which, with minor exceptions, are maintained in our larger ports or adjacent to them. The country has been remarkably free from the epidemic which emphasized the value of the Public Health Service, and the Navy as well as all students of this matter recognize the principal duty of the Service as closely allied with the functions of the Bureau of Medicine and Surgery of the Navy. Even if the legislation is not initiated during the present session it is believed that the Navy will make every effort to retain the close relationship which now exists as a permanent combination.

### Red Cross Calls for Nurses.

The American Red Cross instituted a vigorous campaign for recruiting nurses for the hospital service of the U. S. Army in June. The need of trained nurses physically and professionally fitted for Army duty is growing daily as the numbers of the Expeditionary Forces grow. With each division there must go over four fully-equipped base hospitals, in addition to the field stations, each of which must have the proper complement of nurses. The equipment of those that have gone over recently has nearly exhausted the small reserve that the Medical Department has been able to save for such an emergency, and others must be had to take the places of those who leave vacancies in camp and cantonment. Civilians and civilian institutions have expressed some fear that the war would take away the nurses upon whom they are depending, but this hardship will hardly arise, for the graduating classes of the next few months will provide a greater number of nurses than are now on duty with the Army Nurse Corps. It is true, however, that the Army wants the best and to that extent the civilians must sacrifice their trained nurses as they have been giving their family physicians and their trusted surgeons to the preservation of the health of the Army and the care of the wounded.

### An Army School of Nursing.

The Secretary of War has authorized the Surgeon General of the Army to establish an Army School of Nursing with branch training schools in various selected military hospitals throughout the United States. The plan of the Army School of Nursing is based upon the standards which have been found to be desirable and which have yielded the best results in the operation of our civil hospitals so far as relates to the care of the sick. The Army School of Nursing offers to women desiring to care for the sick and wounded soldiers a course leading to a diploma in nursing, should the military hospitals continue in operation for the full period of the course. Should the cessation of hostilities occur before the completion of this period, a certificate will be issued entitling the holder to post in a civil hospital for the branches in nursing successfully completed, and the term of service in the Army School of Nursing.

Women to be admitted to the school must be between the ages of twenty-one and thirty-five; must have had a high school education or its equivalent, and show evidence of physical and moral fitness. It is planned to start several schools at once in selected military hospitals. Until otherwise specified, applications may be sent to the Army School of Nursing, Office of the Surgeon General of the Army, Washington, D. C., and papers will be forwarded.

### Supplies for Medical Department.

In an inconspicuous way the Supply Division of the Army Medical Department has been accomplishing the work allotted to it; and has amassed a vast amount of special material for the Service, says the *Army and Navy Journal*. Its officers have had the purchasing of everything from motor ambulances to quinine capsules and surgical instruments. They have the responsibility for every material thing that goes into the four walls of a base hospital and for everything that goes into a field hospital. This division has purchased enough gauze to spin a thread that would reach to the sun and back. It has procured several thousand motor ambulances and all the motor cycles used by the Department; and it may be reliably said that not an organized base hospital, field hospital or ambulance company has gone abroad for service unsupplied with every last detail of its outfit. Not a camp within the United States is lacking in the outfit prescribed by the regulations; and it is understood that a reasonable economy has protected all outlays of funds appropriated by a government insistent that sick and wounded have all that money can do for them.

### Women's Motor Corps.

The Motor Corps of America, an organization of women, has been officially recognized by the Medical Department of the Army and will be under the jurisdiction of the Surgeon General. Capt. Helen Bastedo is commandant of the corps, which includes volunteer uniformed workers in all parts of the country. Besides ambulance service and transportation of sick and wounded to hospitals, they also search women on incoming vessels. All are expert drivers and mechanics. The American Red Cross Motor Corps of Washington, D. C., has also been called upon for co-operation in the work in the War Department Emergency Division for civilian employees and for other emergency work.

### Naval Hospitals in England.

A location for another of the seven naval hospitals in England has been selected and it is now being prepared for the use of the Navy. The site, the location of which cannot be disclosed at this time, is one of the most beautiful places in the British Isles and when turned over complete to the Navy it will be probably the finest naval hospital in the world. The personnel of its staff came from San Francisco and on the staff are a number of the leading surgeons from the Pacific coast. This personnel will be under the direction of Medical Director Bogert.

## Obstetrics and Gynecology

### The Treatment of Sterility.

The whole subject of sterility in the female is worthy of more study and research than it has yet received, and much of the treatment suggested is purely empirical and not founded upon any accurate knowledge of the etiological factors. No case can be considered to have been properly investigated in which the husband is not subjected to as thorough an examination as the wife. This is, however, rarely carried out. The causes of sterility in the female may be classified under the four headings of structural, bio-chemical, functional, and psychic, and the more we consider these four classes the less we find we know about them. Fertility requires not only the presence of healthy spermatozoa and healthy ova but also their normal conjugation, which probably involves certain bio-chemical interactions, of which we are as yet quite ignorant. In a given case of sterility it is the exception to find any recognizable pathological change in the female pelvic organs—that is, if we include only those cases in which the patient primarily seeks advice for her sterility. An obvious and complete obstacle to fertilization is the closure of the two Fallopian tubes as the result of preceding salpingitis or pelvic peritonitis. The operation of salpingostomy has been devised for the purpose of overcoming this difficulty, but it is doubtful if the successes resulting from its performance are at all numerous.

In many cases the artificial opening made in the tube in all probability becomes secondarily closed.

At a recent meeting of the Royal Academy of Medicine in Ireland Dr. Hastings Tweedy showed a specimen of ectopic gestation removed from a tube which he had resected on two previous occasions. On the latter occasion catgut was placed in position in the tube, and the specimen showed that it gave free passage to spermatozoa. He attributed the ectopic gestation to the irritative effects of the chromicized catgut. Tweedy described a method of passing silkworm gut into the tube and removing it after three or four days by means of a plug of iodoform gauze left in the uterus. Dr. Bethel Solomons read notes of a similar case of ectopic gestation after resection of the tube and the insertion of a piece of catgut to keep it open. These two cases are very interesting, but it might be argued that, if the tubes had only been resected and no catgut placed in the lumen, the patients might not only have become pregnant as they did, but the fertilized ova might have passed into the uterine cavity and progressed normally to full term. The idea is an ingenious one and it will be interesting to see if any further successful cases, if these cases merit that description, are recorded.—(*Lancet*, April 13, 1918.)

### The Treatment of Chronic Cervical Catarrh.

Alfred Heineberg, of Jefferson Medical College, believes that failure to obtain satisfactory results in the treatment of chronic cervical catarrh may be attributed not only to confusion in methods but to other causes. Chief among these is the failure to fully recognize the etiologic and complicating factors of the disease. Before treatment of any kind is instituted a careful and correct diagnosis should be made. The causes of cervical discharge may be classified as follows:

- |  |  |
|--|--|
|  | <b>Group I.</b>  |
| Constitutional   | Anemia (chlorotic)   |
|  | Tuberculosis.  |
|  | Syphilis.  |
|  | Gout.  |
|  | <b>Group II.</b>   |
| Conditions outside of the cervix which prevent the return of the cervical mucosa to its normal state | Displacements of the uterus.   |
|  | Chronic inflammation of the uterus, tubes, ovaries, pelvic peritoneum and connective tissue. |
|  |  |
|  | <b>Group III.</b>  |
| Condition outside of the cervix which reproduce the exciting cause                                   | 1. Bartholinitis.  |
|  | 2. Infection of Skene's ducts.   |
|  | 3. Pyosalpinx, with occasional discharge of pus into the uterus.                             |
|  | <b>Group IV.</b>   |
| Conditions within the cervix   | Infection.   |
|  | Erosion.   |
|  | Ectropion.   |
|  | Hypertrophy.   |
|  | Cystic degeneration.   |

**Group I.**—Chlorotic anemia and tuberculosis play an important role both in the causation and persistence of abnormal cervical discharge in young virgins. The thick, mucoid, or mucopurulent discharge from the cervix in such cases is an expression of a catarrhal, atonic state of the cervical mucous membrane, similar to that seen in the bronchial and gastric mucosae in the same constitutional states.

The treatment should be directed more toward combating the underlying cause than to attempts at correcting the discharge with local applications to the cervix.

**Group II.**—It should be thoroughly understood that the cervical catarrh which occurs in the presence of one or more conditions in this group is only a minor part of the existing pelvic pathology.

The changes which are found in the cervix in such cases are the result of long-continued congestion of the pelvic circulation produced by the other pelvic lesions. Failure to recognize or to correct the more important pathologic process, the initial cause of the cervical catarrh, will bring only disappointment in treatment of the discharge.

**Group III.**—The lesions in this group are more difficult of detection than those in the preceding. In the majority of instances they are due to gonorrheal infection. Another prolific cause of cervical discharge is curettage and the use of a Wylie or similar drain for the correction of acute antelexion. Many cases after this treatment suffer from a persistent cervical discharge when none had been present prior to the operation. The author has abandoned the curette and the drain and finds that his results are just as satisfactory from simple, thorough dilatation.

**Group IV.**—If all of the foregoing conditions which in one way or another contribute to the persistence of a cervical discharge can be excluded, or if the discharge continues after their correction, then, and only then, may local treatment of

the cervix be expected to produce a cure. The pathological lesions of the cervix itself which produce persistent discharges of varying intensity are:

- |   |  |
|---|--|
| Chronic catarrh endocervicitis                              | { Hyperplasia of the cervical mucosae. |
| Erosion { Simple.<br>Papillary.<br>Glandular or follicular. |  |
| Ectropion.<br>Hypertrophy.<br>Cystic degeneration.          |  |

In the treatment of chronic endocervicitis it makes little difference whether the changes in the cervical mucous membrane be considered the result of infection or merely dependent upon a chronic pelvic congestion, provided the causative factor has been removed. The glands of the hyperplastic mucosa are found to be more tortuous, dilated, and frequently surrounded by inflammatory infiltration and lined with epithelial cells which secrete an abnormal amount of thick, tenacious mucus.

After we have paid attention to all conditions within and without the cervix which may be either etiologic or complicating factors of the cervical catarrh, and after we have corrected the extra-cervical causes by approved methods, we must consider what may be done to restore the cervical mucosa to a healthy state and decrease the discharge to a minimum. The employment in hundreds of cases in hospital and private practice of glycerin tampons alone as advocated by Bandler, or of direct application to the cervix as advocated by Kelly and as ordinarily carried out, has convinced the author that neither method of treatment gives entirely satisfactory results in the majority of cases. Results from glycerin tampons are not as satisfactory as those obtained by direct applications to the cervix, provided the applications are properly made. The secret of success lies in the preparation of the cervical mucous membrane for the reception of the medicating agent. We know that the cervical canal in health contains a plug of clear, tenacious mucus. In pathologic conditions the cervical secretion is increased in quantity and becomes thick, cloudy, mucopurulent, and still more tenacious. Most of the medicinal agents, such as silver nitrate, phenol, or the organic silver compounds, which are used in the treatment of diseased mucous membranes coagulate mucus as soon as they come in contact with it. The resulting dense wall of coagulum acts as a barrier to the access of the medicinal agent to the mucous membrane and nullifies whatever effect it might have. Complete removal of the secretion cannot be effected by swabbing with cotton or gauze, or by the use of a suction apparatus, and these methods when persisted in frequently cause bleeding which still further counteracts the action of the medication. The cervical discharge can be easily and thoroughly dislodged by irrigation of the cervical canal with a weak alkaline solution of the following formula:

Sodii bicarb.,  
Sodii chlorid.,  
Sodii borat., equal parts.

Dissolving 1 drachm in 1 pint of water.

The syringe consists of a silver Eustachian catheter attached to a 10-Cc. Luer syringe by means of an adapter. The tip of the catheter is introduced well into the cervical canal and the fluid expelled from the syringe under sufficient pressure to dislodge the mucus. Several syringefuls may be necessary. There is not much likelihood of forcing the solution into the uterine cavity, unless the internal os is dilated or too much force is employed. Before beginning the treatment the condition of the internal os should be determined with a thin sterile probe. If it is found to be much dilated, as it rarely is, the alkaline solution should be applied on cotton-wrapped applicators instead of by irrigation. When the cervical mucous membrane is entirely clean it should be thoroughly dried with absorbent cotton and is then ready for the application of the medicating agent. I find no drug is as beneficial as silver nitrate.

In the aggravated cases of long standing, in which the mucosa is greatly thickened and erosion extensive, begin the treatment with a 50-per-cent. solution, applied every three or four days. The first few applications are apt to cause bleeding from the eroded surface. As the discharge lessens in amount and becomes thinner and less purulent, the strength of the solution is gradually decreased to as weak as 10 per cent.

If the cervix is large and boggy, supplement the applications of the silver nitrate with boroglycerin applied on wool tampons until the cervix is reduced in size. It is most gratifying to observe the changes which take place in the erosion under this treatment. It gradually decreases in area through substitution of stratified squamous for the thin columnar epithelium. The patient is given a prescription for the alkaline



powder with directions to use one tablespoonful in two quarts of warm water as a vaginal douche once or twice a day, depending upon the amount of the discharge. One distinct advantage of this treatment is that it lessens the necessity for extensive amputation of the cervix. I find that the cases of bad erosion and ecropion which were formerly subjected to high amputation in order to get rid of the diseased tissue, require after the treatment only trachelorrhaphy or a moderate amputation, if any at all—(*Ther. Gaz.*, April, 1918.)

### Gestation Prolonged to Twelve Months.

Roger Miller, of London, reports this interesting case: "Mrs. N.—, M. aged 28 years, consulted me as to her condition on May 6, 1916, when I found she was suffering from persistent leucorrhea, sickness, and cessation of menses since February 12, 1916. No marital relations had taken place since before the last menstrual period. On examination and questioning, I found that she was distinctly pregnant, for the second time, and that such pregnancy had advanced three months. I calculated that normal delivery should take place about November 19, 1916, and was booked for that date. I attended her for some time for the local discharge, and as her husband had been called up to the Forces, no marital relations took place during this period. On November 19, 1916, I was sent for, as labor pains had begun fairly strongly, and a discharge of liquor amnii had taken place. On examination, I found the os dilated to the size of a shilling and the vertex presenting. Pains were very slow—15 minutes interval—and of short duration. These continued for just over 24 hours and then entirely ceased. The case dragged on slowly to my great surprise and anxiety until at last, on February 11, 1917, labor definitely set in, and she was delivered of a healthy female child on February 12, 1917, after a very tedious labor which was terminated by forceps, and after twelve months' cessation of menses and undoubted pregnancy, for no marital relations had taken place since just previous to February 12, 1916. Recovery was slow but good. Fetal movements during the last three months were very feeble."

Miller has been engaged in obstetrical practice for over thirty years, and has never seen a similar case. Playfair, in his *Treatise on the Science and Practice of Midwifery*, Vol. I, page 178, quotes four cases in which pregnancy extended, respectively, into 336, 332, 324 and 319 days, so that if pregnancy can and has extended for that length of time, it is certainly quite feasible for it to extend another twenty-nine days.—(*Practitioner*, Jan., 1918.)

### Retroversion of the Uterus: Its Prevention and Cure.

Edward P. Davis, of Jefferson Medical College, says: A simple case of retroversion and retroflexion in a healthy patient who has no suffering or inconvenience resulting from this condition requires no treatment. When pregnancy occurs in a woman having a retroverted and retroflexed uterus, the womb will unfold and develop with difficulty, and symptoms will speedily develop.

A considerable number of these cases go on to spontaneous cure as pregnancy develops. Abortion is a frequent occurrence among these patients, and is of the utmost importance to the woman because it gives a favorable opportunity for a great improvement in her general health.

When pregnancy occurs in a retroverted and retroflexed uterus and abortion does not develop, if infection takes place the uterus may be bound down in the pelvis by adhesions, the ovum may die, and incarceration of the uterus and septic infection develop. This is a condition of great danger and calls for skilful surgical treatment.

When pregnancy occurs in a retroverted uterus treatment is addressed to two ends: to restore the uterus to its normal position and to continue the pregnancy. It must be kept in mind that violent manipulation in replacing the uterus will produce abortion, and hence whatever measures are used to replace the womb must be carried out with caution.

When a physician is called upon to examine such a case, the examination should first be made with the patient lying upon her back at the edge of a bed or table. After the diagnosis has been made the patient should be put in the knee-chest posture, clothing having been completely loosened, or the heavier clothing having been removed. Two fingers should be inserted within the vagina and the posterior vaginal wall carried strongly upward and backward. By inserting the longest fingers pressure can then be made upon the retroverted fundus and an effort made to carry this up above the pelvic brim. Remembering that there is space at each side of the promontory of the sacrum, the fundus may be guided to one of the other of

these landmarks. By gentle but steady pressure the fundus can usually be carried up above the pelvic brim.

If the patient is more than three months advanced there is not much danger that the uterus will again become retroverted. If she is in the earlier months it may be necessary to sustain the uterus in its normal position for some time. In cases in which the uterus does not go readily into normal position it may be necessary to restore it very gradually. For this purpose the patient should remain in bed and should empty the bladder at frequent and regular intervals. The bowels must be kept free from constipation. To aid in restoring the uterus gentle but continuous pressure may be made by tampons of carded lamb's wool, sterilized and soaked in a one-per cent. lysol solution.—(*Ther. Gazette*, Jan., 1918.)

### Myoma and Pregnancy.

Heimo thinks (*Ann. de gynec. et d'obst.*, 1917, lxxii, 449) that the modifications of uterine myoma by a coexisting pregnancy, viz., hypertrophy softening, and dissolution, only rarely act as an obstacle to pregnancy. Thus in Beutner's clinic at Geneva, from 1907 to 1914, surgical intervention has been necessary in only four cases. The particulars of the cases are given. In these four cases the myoma has had no effect on sterility. In all cases of myoma coming to the clinic since 1907 only 20 per cent. have been sterile.

He says that when a myoma is demonstrated in a woman sterile for ten to twenty years the myoma cannot be considered the cause of the sterility; and that the influence of myomata on sterility and pregnancy has been much exaggerated.—(*Int. Abst. Surg.*, Sept., 1917.)

## Surgery

### The Limitations of Local Anesthesia in Surgical Operations.

Leigh F. Watson, of Chicago, believes local anesthesia has its limitations as has any other method of anesthesia. It cannot be successfully employed for every operation nor can it be used on all patients. In some instances it is not suited to the temperament of the patient; in others, the operation is one that should not be attempted by local anesthesia alone. The variety of major operations that is possible to be completed by local anesthesia, depend upon a proper selection of cases and the experience of the operator; his patience, his gentleness in handling tissues, and special training in the method.

The first requisite for the successful use of the local method is an accurate knowledge of the nerve supply, and the ability of the operator to block off completely every sensation of pain. When the nerve supply cannot be entirely controlled general anesthesia should be employed.

The sensation of pain is confined to the skin, nerve trunks, parietal peritoneum, and synovial membrane of joints. Lennander has demonstrated that all internal organs obtaining their nerve supply from the sympathetic and vagus, below the branching of the recurrent nerve, have no sensation. For this reason the abdominal and pelvic viscera are insensitive to heat, cold, pain, and pressure, both in health and disease. There is no sensation of pain in bone substance, bone marrow, cartilage, tendon, articular surface of bone covered with cartilage, brain, lung, liver, heart, kidney, kidney pelvis, ureter, bladder serosa, and intestine. A slight twinge of pain is felt when blood vessels are cut. Traction on the ligaments of the thoracic, abdominal, or pelvic viscera will cause pain; traction on the mesentery, besides producing pain, will cause epigastric discomfort and nausea.

Novocain, one-fourth per cent. solution, or cocaine, one-tenth per cent. solution, is strong enough for any operation. Adrenalin (1:10,000) five minims to the ounce of anesthetic solution is usually employed to give prolonged anesthesia. The drug must be sterile, and dissolved in sterile normal salt solution, being freshly prepared for each operation, and of a definite strength, that the operator may know at any time the exact amount of anesthetic that has been used. Cocain and novocain can be sterilized by heating to 212 degrees F.; a temperature above this, as well as repeated sterilization, is injurious.

Watson uses a metal syringe holding 10 c.c. As there is no danger of post-operative pulmonary cardiac, or nephritic complications following local methods, many emergency operations can be satisfactorily and safely performed in the patient's home.

Many patients will consent to operation under the local method who would not consider it if it involved a general anesthetic; this applies especially to those who have had a stormy and protracted convalescence after taking ether.



Allen sums up the advantages of the local method as follows: Absence of fear of the anesthetic; absence of post-operative disturbances; no danger of post-operative dilatation of the stomach or of tympanites; no post-operative backache; no vomiting and straining to weaken abdominal incisions; no necessity to starve the patient beforehand—the regular post-operative nourishment of debilitated patients is not interfered with. Allen says, "Local anesthesia is actually contraindicated only in children, epileptics, and highly nervous or neurotic subjects. The loss of consciousness is not necessary for the successful performance of an operation, and with the patient's restlessness and possible anxiety allayed by a small preliminary dose of morphine, or morphine and hyoscine, the fact that the patient is conscious becomes a negligible factor for the successful completion of the operation."

In selecting the anesthetic for a major operation, one must first of all consider the life of the patient. Local anesthesia adds greatly to the safety and comfort of the young and robust, and when the patient is handicapped by old age, shock, hemorrhage, pulmonary, nephritic, or cardiac lesions, the local method is especially indicated if he is to be given the greatest chance for recovery.

In dislocations, fractures, and amputations of the fingers and toes a simple infiltration around the base of the digit is all that is required for successful analgesia. For operations above the wrist and ankle, the regional nerve block method of Matas is most satisfactory and quicker than local infiltration.

Trephining, exploratory craniectomy, mastoidectomy, and removal of depressed fractures are easily performed under local anesthesia, greatly to the safety of the patient. The bone, dura, and brain substance, are insensitive. Infiltration anesthesia of the skin, fascia, muscles and periosteum, is all that is needed.

All forms of inguinal, femoral, ventral, and umbilical herniae can be operated on under local anesthesia. A general anesthetic is never indicated except in children and the neurotic. For strangulated hernia in patients with lowered vitality, the local method is a necessity, to eliminate the additional shock of general narcosis.

Interval cases of appendicitis, selected cases of acute appendicitis can often be completed under local anesthesia if the mesenteric nerve block technic is employed.

In selected cases Watson has completed the following operations under local anesthesia: Herniotomy, appendicectomy, nephropexy, cholecystotomy, suprapubic cystotomy and proctectomy, gastroenterostomy, colostomy, resection of the tubes and ovaries and shortening of the round ligaments.

Perineorrhaphy, trachelorrhaphy and cystocele operations can usually be performed under local methods.—(*Interstate Med. J.*, Dec., 1917.)

### Skin Grafting Under Septic Conditions.

Paul Bousfield, resident surgeon of the American Women's Hospital, for Officer, London, describes a method by which he has been able to obtain successful grafts upon areas which, though "clean" to the naked eye, were still actually suppurating, dressings which had been left on for twenty-four hours showing a certain amount of pus, and even possessing an offensive odor. The following is a case which seemed less promising at the beginning than any other the author dealt with:

The patient had been wounded in the arm, the head, the back, and the left thigh. The wound in the arm had necessitated a guillotine amputation in France, which had remained septic; the wound in the thigh had been excised in France, and when I received the patient in England it consisted of an area on the posterior surface extending from two inches above the knee to the natal fold. The outer border reached to about one and a half inches in front of the great trochanter, and the inner border to within about one and a quarter inches of the rectum—an area of approximately seventy-two square inches, in which all the skin, superficial fascia, and fat had been removed and had left the hamstring muscles exposed and still in a septic condition in very nearly their whole length. On first viewing this leg it seemed doubtful whether it could be saved, especially as the wound was of such an irregular shape that a plastic operation by means of which parallel strips of skin might be brought over portions of the exposed surface was not possible.

For ten days the wound was dressed on every third day with pure sterilized liquid paraffin containing one drachm of ordinary bipp to the ounce. At the end of this period the wound was quite clean at the edges and had granulated well over the muscles; a skin graft under the following conditions was decided upon in spite of the fact that the dressings were still somewhat offensive.

The edges of the wound and the skin of the buttocks, whence the graft was to be taken, were sterilized with iodine; the surface of the wound itself was sprayed with zoel, made by mix-

ing 1 pound of 78 per cent. electrolytic caustic soda ground to pass through a sieve with ten holes to the linear inch, with 1½ pounds of No. 20 pure salt; to this is added 5¼ pounds of granulated borax and the whole well shaken together. Combination of the caustic soda with the borax takes place rapidly, resulting in a mixture (zoel) containing 19½ per cent. sodium chloride, 3 to 4 per cent. of sodium diborate, and 76½ to 77½ per cent. of sodium monoborate. Bousfield then raised small portions of the skin of the buttocks with forceps and dissected off portions about a quarter of an inch in diameter and one-sixteenth of an inch thick in the center, passed a single stitch through each graft and through the granulation tissue, suturing each graft in careful apposition and in all planted about thirty-five grafts in this way. Again he sprayed with an atomizer a solution of zoel upon the grafted wound, and then dressed the whole with gauze soaked in sterilized paraffin, so that the dressing should not dry and tear off the grafts or cause bleeding when it was changed.

The paraffin dressing was left on for forty-eight hours without removal, but was moistened from time to time with fresh paraffin in order to prevent it from sticking. At this period the dressing had begun to smell, and the edges of the dressing had become green. He therefore redressed the wound, and sprayed it again with a 2 per cent. solution of zoel, afterwards again placing over the surface gauze soaked in paraffin. This procedure was repeated from time to time on the average every twenty-four hours, and at the end of twelve days every graft had not only taken but had spread to more than twice its original area.

The success of the technique is ascribed to three outstanding conditions:

1. The fixing by means of sutures of the grafts, so that, although in an awkward position, they cannot be removed when the wound is dressed.
2. The use of liquid paraffin as a medium for the dressing, which prevents any adhesion, and hence movement of the grafts.
3. The use of an antiseptic spray which is efficient in its germicidal powers, and yet non-irritant and non-poisonous to such delicate tissues as skin grafts: this last is, without doubt, the most important of the three.—(*Brit. Med. Jour.*, Dec. 29, 1917.)

### A Method for Efficient Drainage of the Knee-Joint.

Colonel A. W. Mayo-Robson says septic inflammation of the knee-joint is one of the most serious and anxious conditions that the surgeon can be called on to treat.

The chief danger arises from the character and shape of the knee-joint with its various recesses and pouches, rendering efficient drainage in the ordinary position absolutely impossible.

With the limb in the usual dorsal position, the deepest part of the synovial cavity is in front of the popliteal space, much below the level of the suprapatella pouch. Drainage is at present practically always effected by inserting a tube or tubes into the pouch above the patella, leaving much of the septic contents of the joint behind and between the femur and tibia with a tendency to make a way for itself to the surface by burrowing backwards into the popliteal space or along the course of the tendons in that region, upwards into the thigh, and downwards into the leg, or in both directions; this at the same time leads to septic absorption and blood poisoning from the imperfectly evacuated joint. Thus, in order to save life, the limb or the joint has not infrequently to be sacrificed.

Now, by changing the position of the limb, it is possible to make the suprapatellar pouch the dependent part of the joint, when by the very simple operation of inserting a tube into the top of the pouch the whole joint can be completely evacuated and purified, and if this is done sufficiently early, a speedy recovery may be anticipated with the joint mobility unimpaired.

Two changes of position will make the suprapatellar pouch dependent:

- (a) The vertical position of the limb at right angles to the body with the patient in the dorsal decubitus, or
- (b) The prone position of the body with the foot of the bed well raised.

In both positions the limb must be efficiently fixed on a splint, as fixation in inflammation of the knee-joint is only second in importance to drainage.

The first position can be easily maintained by a horizontal bar of wood arranged over the top of the bed, to which the limb is suspended by a pulley and weight. In this position dressings are easily carried out without moving the limb, and the pulley and weight enable the patient to be raised in bed for the use of the bedpan without pain or disturbance of the joint or dressings.

If for any reason the vertical position is inconvenient or

difficult to carry out, the prone position can be adopted, the foot of the bed being raised and the limb slung from above by pulleys and weights for the thigh and leg.

This position also makes the suprapatellar pouch the dependent part of the articulation, and enables the joint to be completely evacuated of its fluid contents through a tube inserted a little way into that pouch.

As the prone position is irksome if prolonged, the patient, when once the joint has been emptied, may, if necessary, be turned on to his back, and the prone position adopted for from half an hour to an hour every four hours at first, and later about three times in the day, until the drain can be dispensed with.

When once the joint has been thoroughly evacuated of its septic contents, and if needful gently washed out with warm normal saline solution, the synovial membrane of the knee, like the peritoneum, is capable of taking care of itself. Long-continued drainage is very seldom required, and usually a movable joint will be obtained.—(*Brit. Med. Jour.*, Oct. 6, 1917.)

### Fibroma of the Tongue and Other Tumors of the Tongue.

John W. Churchman, of New Haven, says, the average surgeon who sees a lingual growth immediately classifies it mentally on the basis of his own experience as either a benign tumor (fibroma or cyst), a granuloma (tuberculous or syphilitic), or a carcinoma. It is of interest, however, and not without importance—to call attention, after an analysis of the literature of this subject, to the large variety of tumors which may occur in the tongue and have indeed been observed there. The following varieties of new growths of the tongue have been reported in the last twenty years.

#### I BENIGN TUMORS

- (a) Papilloma
- (b) Lipoma
- (c) Leiomyoma
- (d) Rhabdomyoma
- (e) Fibroma
- (f) Tumors of an aberrant thyroid gland (lingual goitre)
- (g) Cysts:
  - 1 Congenital cysts
  - 2 Thyro-lingual cysts
  - 3 Dermoid cysts
  - 4 Degenerative cysts
  - 5 Hydatid cysts
- (h) Chondroma

#### rarities

- (i) Osteoma
- (j) Plasmoma or plasmocytoma (A curious case reported by Gessup. Regarded by a committee of the New York Pathological Society, appointed to examine the tumor, as a chronic granuloma of unknown origin.)
- (k) Angioma

#### II MALIGNANT TUMORS

- (a) Epithelioma
- (b) Sarcoma:
  - 1 Angiosarcoma
  - 2 Round, spindle, giant and mixed-celled sarcoma
  - 3 Lymphosarcoma (i. e., part of a systemic disease)
- (c) Endothelioma (including the cylindroma of Ewald)
- (d) Lymphangioma
- (e) Amyloid tumor (cases reported by Schmidt)

Fibroma of the tongue is of sufficient rarity to be only occasionally seen; and when seen, is often the cause of diagnostic difficulty. It may resemble—this was the fact in the case here reported—a cyst; and aspiration (it had been practiced on my patient) may be attempted. But the chief difficulty will be in excluding sarcoma. In my patient we were not at all sure on this point until microscopic sections had been studied with great care; the sections first made suggested sarcoma.

Sarcoma of the tongue, though rare, is by no means unknown. In his treatise on "Diseases of the Tongue," published in 1885, Butlin wrote: "Primary sarcoma of the tongue must be regarded as an extremely rare form of new growth; and I have been able to collect so few cases that it seems to me pointless to attempt a characterization of the disease. Now, however, that attention is called to the great rarity of this tumor, every observation not yet published should be rescued from oblivion and given a place in surgical litera-

ture." Thirty years later Coughlin was able in a study of this tumor to gather together only sixty published cases, including one of his own; and so rare is the condition that it does not fall to the lot of many surgeons to see even one case.

Certain fairly characteristic features of sarcoma of the tongue are brought out by a study of the published cases. In contradistinction to carcinoma of the tongue, which is six times more common in males than in females, sarcoma of the tongue appears to be almost equally frequent in the two sexes. The mucosa over the growth remains intact; the glands are strikingly seldom involved; and the prognosis is relatively good. Relatively good, that is to say, compared to that of cancer, for in a fairish number of cases of sarcoma of the tongue no recurrence has followed simple excision of a wedge-shaped piece of tongue including the tumor—the patients being followed for several years. The operation done has varied from a modest local resection to a radical removal of the tongue, in a few cases including the floor of the mouth. The statistics do not indicate clearly that the more radical operation is the more effective; and the rarity of glandular involvement hardly justifies a glandular dissection. This is fortunate; for as in my case of fibroma of the tongue it is often impossible to say clinically that a given apparently fibrous tumor is not an interstitial sarcoma; the interstitial sarcoma being of more frequent occurrence than the rare pedunculated variety. The history of Churchman's case of fibroma was illuminating in some respects, chiefly for the diagnostic confusion it caused.

Patient is a man aged forty-four who first noticed the tongue growth two months before admission. The tumor caused no symptoms, but the physician consulted, aspirated it; no fluid was obtained. Histologically the tumor was a fibroma. Convalescence was without event; and the tongue functions perfectly.

As regards the technique of operations on the tongue, Churchman never touches the inside of the mouth with a knife. The entire resection of tongue and floor of the mouth is done with a cautery. The tongue is kept under control by silk stay sutures, which are placed posterior to the point where the incision in the tongue is to cease. If this method of combined stay sutures and cautery dissection is used there is no hemorrhage whatever and the situation is always completely in hand. It is not at all necessary to tie the lingual vessels in the submaxillary triangle; their main branches where they enter the tongue are readily seen and clamped just before being burned through. From the lingual tissue itself practically no bleeding whatever occurs when the cautery dissection is used, there is no hemorrhage whatever and quite easily and simply done. The well-known tendency to recurrence in the floor of the mouth makes it extremely important that the cautery and not the knife be used in this region. After the tongue has been resected (and following Butlin's advice he always does the hemi-resection, leaving one-half of the tongue, which provides for quite satisfactory articulation), secondary oozing from the substance of the tongue is provided against by placing a few through and through sutures, the ends of which are left long so as to allow control of the tongue stump in case any post-operative difficulties with breathing are encountered.

Churchman always removes the tongue by the jaw-splitting operation, preferably two or three weeks after a complete and very radical dissection of the glands of both sides of the neck has been done and the wound allowed to heal. There is no doubt in my mind that the tissues of the neck, in cases of carcinoma of the tongue (particularly if there is any glandular involvement), have an extremely low resistance, and that a low grade infection not infrequently occurs; and that this infection may persist long enough to postpone unduly the tongue operation itself. On the other hand if the tongue operation is done first, healing may be delayed in the bone, an osteomyelitic sinus persist for some time and the glandular dissection be unduly postponed. At the present time this danger of delayed glandular or tongue operation from a persistent sinus of the jaw or of the neck is the one technical defect of the operation; and I have been unable in all cases to avoid it. A contributing factor to the danger of a jaw sinus was undoubtedly the wire with which the fragments of the divided bone are united and which in one case I was compelled subsequently to remove. At present he considers wiring the fragments a mistake; thorough wiring of the teeth (according to the now well-recognized method of orthodontia) keeps the fragments perfectly in position and thus one danger of a bone sinus is eliminated. The encouraging fact is that cancer of the tongue may be cured and a reasonably useful half tongue be left by a two-stage resection. The resection of the tongue must be done with a cautery; the neck dissection must be thorough, both sides being removed as far



down as the clavicle and particular attention being paid to the submental region. The author has now under his care a patient on whom this operation was done three years ago; there is no sign of recurrence and the patient eats and talks well.—(*Med. & Surg.*, Vol. II, No. 2.)

### Gunshot Wounds of Kidney.

Patel after describing two cases of gunshot wounds of the kidney and hilum, says that wounds of that organ alone are relatively rare. In two years of work in a large hospital at the rear he saw only three cases of old wound of the kidney. Two of the patients had a fragment of shell in the renal pelvis, with clinical signs exactly resembling those of the calculus. At the time of the injury there was no sign of serious hemorrhage, only an outflow of liquid, probably urine, through the wound. The surgeons at the front had not thought intervention called for. Patel after localization by radiocopy removed the fragments by a true pyelotomy; both patients recovered. In the third case a fragment of shell was buried in the renal substance; the man died of infection and secondary hemorrhage before Patel thought of operating.

When, as is mostly the case, other organs—intestine, liver, or lung—are seriously injured at the same time lesion of the kidney is likely to escape notice. The diagnosis of renal lesion presents difficulties. The seat of the injury—lumbar or lower thoracic region—is a useful guide. Abundant bleeding through the wound suggests injury to a large vascular trunk, but it is not possible to determine the source more precisely. Hematuria is a sign of capital importance. The absence of all peritoneal reaction in the two cases reported warrants the assumption that the peritoneum had not been touched. As in all cases of war wounds, a precise diagnosis is arrived at by direct exploration of the lesion. In both cases Patel performed nephrectomy, which he considers to be the only possible treatment. The men were admitted in such a condition of anaemia that the immediate arrest of hemorrhage was imperative; in an extensive wound of the kidney plugging would have been inadequate; even if the first gush had been stopped secondary hemorrhage would almost certainly have occurred. In both cases the operation was well borne, and the flow of urine was at once established.—(*Paris Med.*, Sept. 29, 1917.)

### Recurrent Tetanus.

An instance of recurrent tetanus has been recorded by Hermann Meyer (Bruns's *Kriegschirurg.*, H. xxxix, p. 673, 1917). The patient developed stiffness of the lower jaw twenty-four days after receiving a bullet wound of the right leg. Serum injections were immediately administered, and were repeated on the two following days without producing any obvious effect. On handling the wound, which was discharging freely, twitches occurred in the affected leg, and two days later some rigidity of the back was noticed. On the tenth day, after eight preventive doses and one curative dose of serum had been administered, the symptoms began to decline and the patient made uninterrupted progress towards recovery, except for an attack of severe pain in the leg and thigh which occurred on the thirty-seventh day. On the eighty-first day slight trismus recurred, together with twitching of the right leg; two days later twitching occurred in the left leg also, and the abdominal muscles became rigid. These symptoms subsided after a course of serum injections. On the hundred and thirteenth day twitching recurred in the right leg, with marked rigidity of the muscles on attempting to move the limb. These symptoms persisted with little change for five weeks. On the hundred and fifty-fourth day severe and painful spasms occurred in the right leg, back, thorax, and abdominal wall, and there was abundant sweating, with normal temperature. Movements of the arm and jaw were unaffected.

At this stage the patient came under Meyer's care; he was then pale and wasted. On the inner aspect of the right leg there was a scar 5 cm. long, and on the outer side a somewhat longer scar, beneath which fluctuation could be detected. Both feet were in a position of extreme equino-varus and immovable; the right knee and hip were flexed, and the whole musculature of the limb rigid. The dorsal and abdominal muscles showed extreme rigidity, but those of the arms and thorax were normal. The masseters became rigid only on opening the mouth widely. The x-rays showed the presence of two sequestra beneath the scar on the outer side of the leg. This scar was excised, and an incision into the inner cicatrix opened a cavity, which was lined with granulation tissue and contained opaque serous fluid. From this cavity two sequestra were removed, and mice injected with some of the contents developed the symptoms of tetanus. There was no return of the spasms subsequent to the operation, and the muscular rigidity gradually declined, leaving, however, a certain amount

of contracture, which necessitated surgical treatment. The treatment of recurrent tetanus Meyer considers should be purely surgical—excision of all suspected scars, removal of foreign bodies and sequestra, even where these have apparently healed in completely; free opening up of all infected foci, the cavities being allowed to granulate up, in order to prevent the inclusion of spores in the cicatrix. Meyer has appended to his article a description of thirteen cases of recurrent tetanus which have been previously recorded.—(*Brit. M. J.*)

## The Physician's Library

**Diseases of the Heart and Blood Vessels.** By Thomas E. Satterthwaite, M. D., L.L. D., Consulting Physician to Post Graduate and other hospitals. 325 pages. New York: Lemcke & Beuchner, 30 W. 27th St., 1918.

This volume is really a regrouping and a revision of two of the author's books, *Diseases of the Heart and Aorta and Cardio-Vascular Diseases*. To this revision he has added a great amount of new material, discussing among other subjects, the relations of internal secretions of the heart, the hygienic and dietetic management of heart disease and the treatment by drugs, cardiac surgery, blood pressure and other subjects. The book sets forth very clearly the use of instruments of precision which have to do with the diagnosis of cardiac conditions. It is, indeed, a thorough and comprehensive treatise on heart diseases and is one which will be recognized for years to come as a standard in this very important subject. The author is one of the best known cardiac specialists in the country and his words are bound to have great weight.

**The Elements of the Science of Nutrition.** By Graham Lusk, Ph. D., Sc. D., Professor of Physiology at Cornell Medical School. Third edition. 641 pages. \$4.50 net. Philadelphia and London: W. B. Saunders Company, 1917.

At a time when nutrition is likely to play a more important part in the history of mankind than ever before, physicians are naturally interested in the science of nutrition. Germans believe that if they can feed their soldiers properly on a rapidly diminishing food supply, victory will crown their arms. We are constantly having this fact brought to our attention by the Food Administration and there is little doubt that food will win the war. For this reason, the medical profession is giving more and more attention to the science of nutrition and the third edition of this book, which is, by the way, the leading one of its kind, is of more than timely interest. The author sets forth the advances that have been made in the laboratory study of nutrition in the United States and it is a pleasure to observe that this country, probably leads the world now in the study of this important subject.

**A Treatise on Clinical Medicine.** By William Hanna Thomson, M. D., L.L.D., formerly Professor of Practice of Medicine in New York University. Second edition. 678 pages. \$5.50 net. Philadelphia and London: W. B. Saunders Company, 1918.

There is naturally a marked similarity in works on clinical medicine, but the feature of this book is that the author has given particular attention to the various conditions as seen in the sick room. He shows the meanings of the various symptoms and treats every disease exactly as the physician sees it. In other words, Dr. Thomson tries to get away from text book medicine and to paint the picture as it comes to the attention of the practitioner. The second edition has followed rapidly after the first and merely serves to bring the book up to the minute. In this edition, he lays particular stress on the treatment of disease by light. This volume is one which is bound to commend itself to practitioners as being of great practical value.

**Differential Diagnosis.** Presented through an Analysis of 317 cases. By Richard C. Cabot, M. D., Assistant Professor of Clinical Medicine, Harvard University. Volume 2, Second edition. 709 pages. 254 illustrations. \$6.00 net. Philadelphia and London: W. B. Saunders Company, 1918.

This volume is a continuation of the first edition on which *MEDICAL TIMES* commented most favorably at the time of its appearance, but Cabot has devised a new method of presenting the ailments of mankind to his fellow practitioners. He deals with twelve of the common symptoms of disease, and by so doing, he has made the various conditions as clear as daylight to the reader. One timely matter is the discussion of shell shock. Every case has something of interest to the reader and we suspect that the Cabot method of teaching, through means of books, may be one which will be more or less adopted by the medical writers of the future.